

THE AUTOMOBILE CLUB OF AMERICA

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MOTOR AGE

Vol. VIII, No. 15

CHICAGO, OCTOBER 12, 1905

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Incidentally (and on the quiet) we may add that Mr. Hill's philanthropy was not in first-class working order the fore part of the year, for he "regrets that he did not get in his order for our tires early enough to have them put on his first shipment of cars this season."

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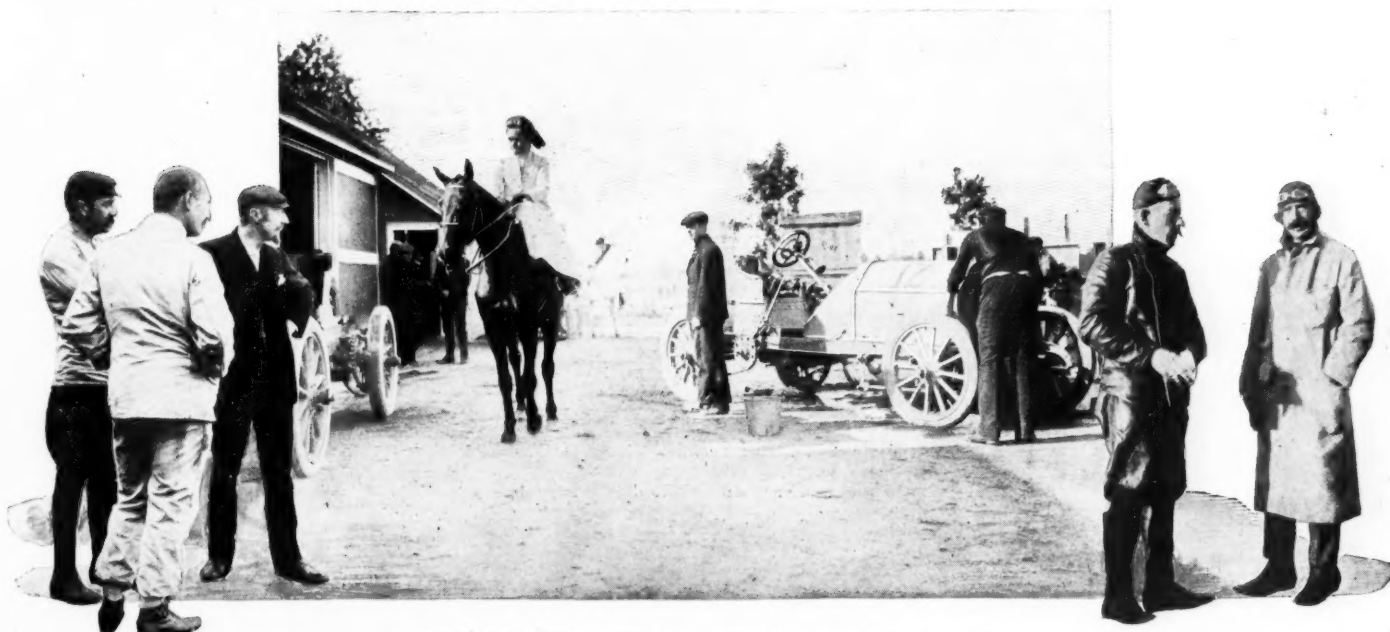
MOTOR AGE

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\$2.00 Per Year

READY FOR THE SECOND VANDERBILT



EVEN THE HORSE BUTTS INTO THE GAME ON LONG ISLAND

NEW YORK, Oct. 11—Special telegram —Chairman Robert Morrell and his cup commissioners have done all they can to have everything in readiness for the second competition for the Vanderbilt cup next Saturday over the 283 miles of highway on Long Island. The roads have all been freshly oiled, the constables who will police the course have had their final instructions, train service has been looked after, seating accommodations for the crowds arranged so far as is possible and if the weather man is kind there will be nothing to prevent the affair being a grand success. At this writing it is extremely doubtful if all the twenty original nominations will start. The withdrawal of Werner has left the German team in the hole, for while Basle and the Bowden Mercedes have been suggested as substitutes no application has been made to the cup

commission to make the change, although the Bowden Mercedes has been declared eligible for the race. The Warden Mercedes has had hard luck in cracking a couple of cylinders and may have to drop out unless it can be fixed in time or an extra engine borrowed from Graves or

Keene. Sartori broke his clutch this morning, but it is expected this will be easy to fix. None of the other cars have suffered any and it is expected that at least eighteen will line up for the start. That the time of the winner will exceed the predictions of the wiseacres after the trial seems certain. Practice trials by the foreigners, who have been the only ones to pull the throttle wide open, have shown that the course is undoubtedly one of the fastest ever used for an automobile road race, so it will surprise no one if between 62 and 65 miles an hour is averaged in the big event. The Americans have been saying nothing, most of them jogging along quietly, rounding out their road education and making themselves letter perfect for the actual competition. That the crowd will be a record one goes without saying, all the boxes and parking spaces



SIGNORA CEDRINO TURNS ASSISTANT MECHANIC

at the grandstand having been sold a week ago. Starter Wagner has brushed up his Italian, German and French and is prepared for the linguistic efforts of his life, so nothing remains but to run the race.

SARTORI BREAKS HIS CLUTCH

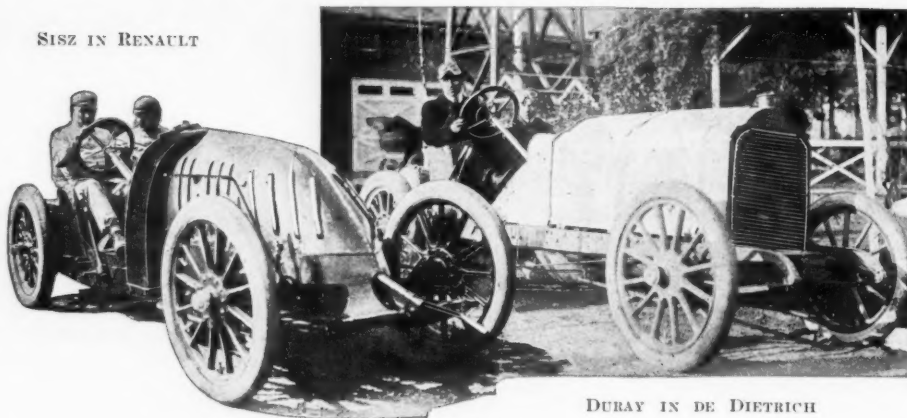
New York, Oct. 11—Special telegram—Sartori, in rounding the Jericho turn in practice with the Vanderbilt Fiat, broke his clutch this morning. In approaching the turn he threw out his clutch and in throwing it in again too quickly the break occurred. His car was towed back to the Fiat garage. It is said that a repair can readily be made in time for Sartori to start in the race.

Every effort is being made to repair the two cracked cylinders in the Warden Mercedes. Smith & Mabley, who are doing the work, expect to make a successful brazing which will carry the car through the race as well as the original. In a final emergency, as a last resort, an effort will be made to borrow an extra engine from Keene or Graves.

The Jericho pike was oiled again yesterday and left a slippery surface. The drivers accordingly practiced with care this morning. Lancia, Keene and Jenatzy made laps in 25 minutes, Nazarri 28, and Sisz 26. Christie, Heath and Dingley made slow rounds.

A story comes from the course this afternoon, that the Italian team men went to the White quarters at Bull's Head this afternoon with the idea of attacking Walter White, whom they accused of refusing to yield the road to allow Nazarri free passage in practice this morning. Walter White was not there. It is said that they went away muttering threats to ditch the White racer when they next encountered it on the road. There is no time to investigate the report and it is merely given for what it is worth. If White held the road, he had a perfect right to do so. Any attempt to ditch White would be a foolish move of equal peril to the Italian cars and it would not be good policy for the foreigners to arouse any American resentment, which might result in somebody getting roughly handled. The story is

SISZ IN RENAULT



DURAY IN DE DIETRICH

probably a mere rumor phoned in by some one who overheard some roadside gossip.

Trains will leave the Thirty-fourth street ferry Saturday morning at 4 o'clock for Garden City, where an hour's stop for breakfast will be made; and another at



LANCIA, THE ITALIAN FAVORITE

5 o'clock direct for Mineola. Ferry boats will leave every 15 minutes and will take aboard all cars possible.

SPECULATION ON SPEED

New York, Oct. 10—An inkling of what may be expected in the direction of sustained speeding in next Saturday's race

was given during this morning's practice by Wagner with the de Dietrich and Sisz with the Renault. That the prophesy of the foreigners that 63 miles an hour at the very least may be looked for is made with good grounds was proved beyond question. Wagner covered 3 laps at an average of 26.12, including stops for gasoline and water each time. This showed 1 hour 18 minutes 36 seconds for 84.9 miles as against 1 hour, 32 minutes 36 seconds scored by Tracy, the leader at this point in the American race. The average per hour was a bit over 65 miles an hour.

Hardly less meritorious was the run of Sisz, who covered 4 laps at an average of 26.30, or, in other words, 1 hour 48 minutes for 113.2 miles, as against Dingley's 2:00:50 in the elimination trial, the Renault's average was 64.07 miles an hour.

By way of a sop to American hopes, however, it is to be recorded that Christie picked up Wagner en route and trailed him mile after mile without being shaken off, despite the fact that only three cylinders of the direct drive racer was in commission owing to a broken porcelain.

A much to be regretted accident occurred during practice, which may rob the German team of another member. It was the cracking of two cylinders of the Warden Mercedes. It is possible, though, that Warden may be able to borrow an engine from Graves or Keene, each of whom has an extra one in his repair shop.

The chances of Basle and the Bowden Mercedes being substituted for Werner are not good. At last night's meeting of the commission there was nothing at hand in the way of a request for the substitution by Mr. Dinsmore, on which action could be taken and so none was. E. T. Birdsall's report, however, was that the Bowden car was eligible. As a matter of fact, Basle has not been over the course and putting him in the race at the last moment might be unwise. Should Warden, however, be down and out for good, there would seem to be a chance for Basle being put in after all that the German team may have more than two representatives.

At this late day there is little inclination on the part of the drivers to take the risk of fast speeding. The laps this morning were rather cautiously covered as follows: Jenatzy, 29 minutes; Cedrino, 28 minutes 30 seconds; Nazarri, 26 minutes 40 seconds; Sartori, 35 minutes; Tracy, 33 minutes 30 seconds; Dingley, 32 minutes 30 seconds; Campbell, 48 minutes, and White, 45 min-

FACTS ABOUT THE TWO VANDERBILT CUP RACES

The course—A circuit on Long Island, starting at Mineola, where the grand stand is located, thence through Jericho, East Norwich, Brookville, Greenvale, Albertson, Lakeville and Hyde Park to Mineola.

Distance of the 1905 race—Ten rounds of 28.3 miles each; total, 283. Turns made to the left.

Distance of 1904 race—284.4 miles.

Number of entries for 1905 race—Twenty; five each representing France, Germany, Italy and America.

Number of starters in 1904 race—Seventeen, representing France, Germany, Italy and America.

Starting time of 1905 race—6:30 a. m., October 14, cars leaving at 1-minute intervals.

Number of corners on course—Six, of which five are to the left and one to the right. No controls and no official stops required.

Winner of 1905 American eliminating trial—Bert Dingley, in Albert L. Pope's 50-horsepower Pope-Toledo.

Winner of 1904 Vanderbilt cup race—George Heath, in a 90-horsepower Panhard, representing France.

Time of winner of 1905 American eliminating trial—2 hours 50 seconds.

Time of winner of 1904 Vanderbilt cup race—5 hours, 26 minutes, 45 seconds.

Average speed of Dingley—56.2 miles an hour.

Average speed of Heath—52.2 miles an hour.

Referee of 1905 race—W. K. Vanderbilt, Jr.

Chairman of Vanderbilt cup commission—Robert Lee Morrell.

Starter—Fred J. Wagner.

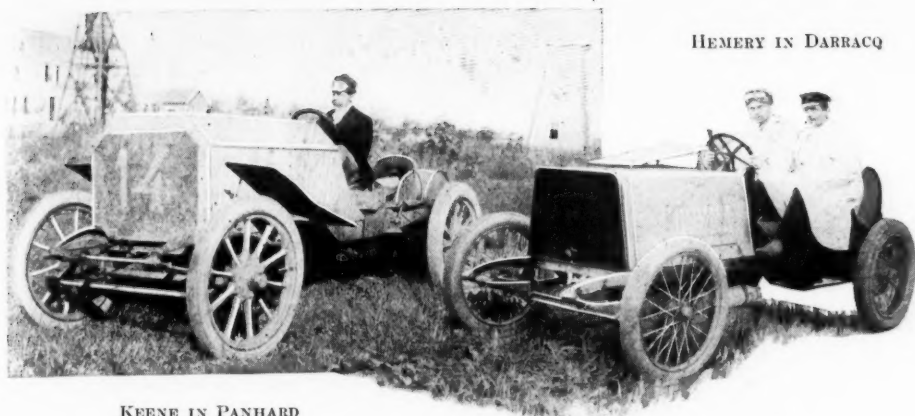
Value of Vanderbilt cup—\$2,000.

Weight limit of all cars in 1905 race—2,204 pounds.

Highest power—Duray's de Dietrich, 130 horsepower.

Lowest power—White Steamer, 40 horsepower.

Types of cars—One steamer; one six-cylinder gasoline car; all others four-cylinder gasoline cars.



KEENE IN PANHARD

HEMERY IN DARRACQ

utes. After covering laps in 50 minutes Lancia and Keene did not again make their appearance at the timing station at Krug's. Lytle is expected at Pope circle to-day by camp followers of the Pope man.

At the request of the foreign drivers Senator Morgan has postponed his banquet to them at the New York Press Club 1 week. The affair will take place the evening following the Dewar cup race. The Automobile Club of America is to give the European visitors a smoker and banquet at its club rooms next Monday evening.

Each of the three tires represented—Diamond, Michelin and Continental—will have five repair stations, each manned by an adequate force of quick repair experts. Car repair stations will be established near them by the users of their tires. Tents, grand stands and refreshment booths are now being erected all along the Jericho pike in the neighborhood of the grand stand. An addition to the latter is being built, which will add 120 seats. From the stand to the Mineola railroad crossing below Krug's, wire barriers will be stretched to keep the crowd back from the road.

KEENE KICKS ON No. 13

New York, Oct. 9—In response to a vigorous kick put up by Foxhall P. Keene at his allotment of 13 on the occasion of the drawing of the order of start at the A. C. A. last Monday night, the members of the German team met at the Garden City hotel Saturday morning and drew for the order of their start. Mr. Keene has a bit of the superstition of an all-around sportsman and particularly the dread of a turfman for the hoodoo number. He insists, though, that his kick was rather at the arbitrary allotment of his place in line by Mr. Graves and Mr. Stevens after the German team had drawn No. 1 than at the No. 13. He thought he should have had a chance to draw a place higher up in the line of starters, and so made formal protest to Chairman Morrell. This diplomat easily brought about another drawing.

For the third time the lucky Graves pulled No. 1 from the hat and again allotted it to his driver, Jenatzy. Mr. Keene bettered his place by drawing No. 5. Mr. Worden, who first was given No. 5, dropped back to No. 9, just behind Nazarrri. No. 13 fell to Mr. Stevens, who, it is reported, through Campbell, will if compelled to take that place in line, insist in substituting the letter Y on his car in place of the hoodoo number.

No. 17 again fell to Werner; but Werner did not come over because Clarence Gray Densmore could not get his Mercedes from the Connstatt factory in time for shipment. It is possible, though, that this number may be borne by a substitute; for as soon



JENATZY, GERMANY'S PRIDE

as Dinsmore announced the withdrawal of Werner, Chairman Morrell got busy on the Boston long-distance wire with a suggestion to Henry L. Bowden that he substitute Flying Dutchman II, his 90-horsepower Mercedes, which last year secured the track records from 3 to 10 miles at Provi-

dence, with Charles Basle as its driver. Bowden replied that there had been some home tinkering done with the transmission, which might make the car ineligible under the rules. Anyhow, he promptly shipped the racer to this city for inspection by E. T. Birdsall, of the A. A. A. technical committee, who will report his findings at a meeting of the commission at Garden City tonight.

EARLY WEEK GOSSIP

New York, Oct. 9—In automobiledom there is no talk but of the Vanderbilt cup race. Now that the foreigners have arrived and the papers are filled with their pictures and stories of marvelous speed accomplishments, the general public has caught the enthusiasm of the race and one overhears the names of Lancia, Hemery, Jenatzy and the whole outfit of cup candidates in subway and elevated train talks. As for the Long Islanders of the Nassau county vicinage, they have given themselves up soul and body to the race. At roadside taverns o' nights the farmers gather and talk race, and in the early morning hours the rustics perch on the fences to see the machines go by.

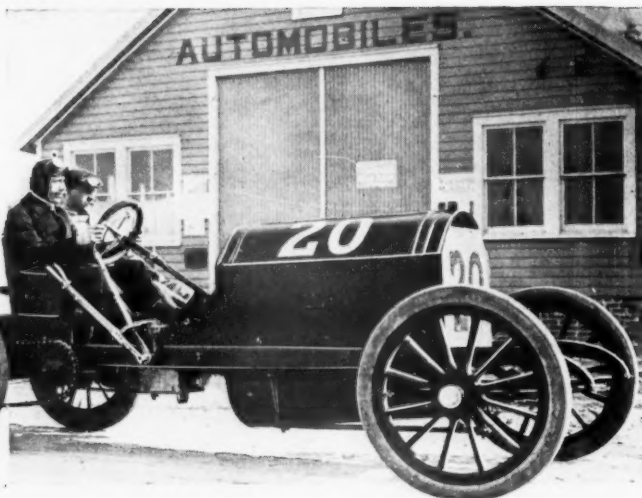
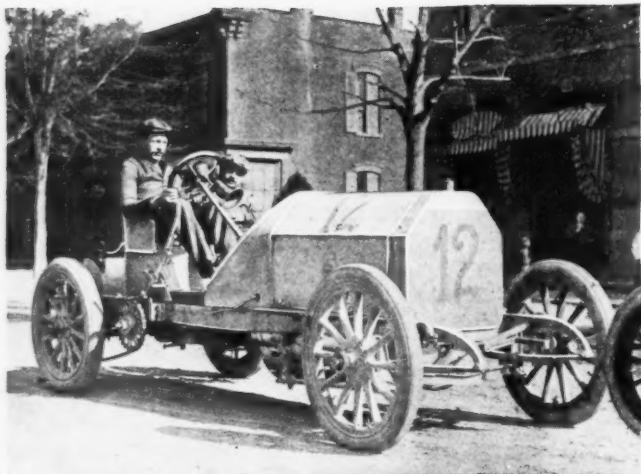
The chief center of action and gossip is at Frank Krug's, at Mineola, just below the grand stand. Here are quartered in the garages the thrifty Krug built especially for the race times, Sisz with his Renaults and Duray with his de Dietrichs, for each is supplied with two cars. In barns hard by are the Panhard of Heath and the Mercedes of Jenatzy. Less than a mile away, at Poirrier's, near Hempstead, is the Italian camp, which mechanics included numbers twenty men, the biggest outfit of the race.

John B. Warden makes his headquarters at the Garden City hotel. All these camps are well represented at the mighty gathering at Krug's, where piano-playing, singing, lively banter and warm argument come in turn. Once in awhile some of the boys from the Pope circle come over to hobnob with the Europeans.

The White outfit is at Bull's Head tavern, and the Darracq people have engaged

NOMINATIONS IN VANDERBILT CUP RACE OF 1905

GERMAN TEAM			
Start	Driver	Car	H. P. Owner
1—	Jenatzy	Mercedes	120.....Robert Graves
5—	Keene	Mercedes	120.....Foxhall P. Keene
9—	Warden	Mercedes	120.....John B. Warden
13—	Campbell	Mercedes	90.....S. B. Stevens
H. L. Bowden's 90-horsepower Mercedes, driven by Basle, will start seventeenth if it is substituted.			
FRENCH TEAM			
Start	Driver	Car	H. P. Owner
2—	Duray	De Dietrich	130.....De Dietrich Co.
6—	Wagner	Darracq	80.....Darracq & Co.
10—	Sisz	Renault	90.....Renault Brothers
14—	Heath	Panhard	120.....Panhard & Levassor
18—	Hemery	Darracq	80.....Darracq & Co.
AMERICAN TEAM			
Start	Driver	Car	H. P. Owner
3—	Dingley	Pope-Toledo	60.....A. L. Pope
7—	Tracy	Locomobile	120.....Dr. H. E. Thomas
11—	Christie	Christie	60.....Walter Christie
15—	Lytle	Pope-Toledo	90.....A. A. Pope
19—	White	White Steamer	40.....R. H. White
ITALIAN TEAM			
Start	Driver	Car	H. P. Owner
4—	Lancia	Flat	110.....Hollander & Tangeman
8—	Nazzari	Flat	110.....Hollander & Tangeman
12—	Cedriano	Flat	110.....Hollander & Tangeman
16—	Chevrolet	Flat	90.....Major C. J. S. Miller
20—	Sartori	Flat	90.....Alfred G. Vanderbilt



CEDRINO AND SARTORI, IN FIAT CARS, MEMBERS OF THE ITALIAN TEAM

the whole Bull's Head inn. Joe Tracy is at Lakeville with the Locomobile, Christie is at the Beckman estate down the Jericho pike, and Campbell puts up at the Mansion house. Foxhall Keene stops at his father's country place at Far Rockaway.

At any hour of the day a visitor to any one of the camps is sure to find a bunch of mechanics pattering with the racing cars, captained by their drivers, who seem to be working the hardest of all. There seems to be always a little bit more to be done to a car. No driver appears satisfied that it is put as it ought to be and a pulling apart of the whole machine looks to be the invariable postscript to a trial.

It has taken a lot of time to get the two Darraeqs and the Lancia and Nazarrri Fiats cleaned up and put in order for practice. They were shipped direct from the Florio cup race and their machinery was clogged with dirt and oil. This morning was the first time that Lancia had his racer out. He covered successive laps in 27 and 26 minutes, which was a satisfactory showing for a first tryout in the minds of those who can see none other in the race but Lancia.

The practice hours, from daylight to 7:30 o'clock, are, of course, the interesting times. Long before sunrise the camps are astir. With the first peep of day the drivers are on the road. Most of them pilot their racing cars, but others are content to practice on the turns with stripped touring cars.

There have been, as might be expected, stories of lap times scored in practice that are hard to credit, though on the whole the reports of the early morning clockers seem to be well within reason. The pub-

lished statement that on Friday morning Hemery scored a lap in 21 and Duray a circuit in 22 minutes is hard to believe. This would mean an average per mile of about 45 seconds and that, too, in the face of all the sharp turns and twistings of a road route. The fastest lap in last year's race was made by Tarte in 24:04. Those who argue in favor of the acceptance of the 21 minutes and 22 minutes of Hemery and Duray point to the fact that a lap last year was a fraction of a mile longer, that two stops for controls had to be made and that the 1905 cars are seconds faster to the mile than those of last year. On the other hand it must be remembered that last year the racers had two very long straights for fast going. Even bets have been made that neither 23, 22 nor 21 minutes will be beaten on the day of the race. Friday is the only day that Hemery and Duray have attempted fast going.

The Americans, barring White, have been conspicuous by their absence from

the course the past week. Every morning, though, Walter White has made his two or three rounds at a safe, even rate of going. He is absolutely non-committal as to his opinion of his chances and will go no further than to intimate his belief that the average time of the leaders will be by no means as fast as some of the quoted laps would indicate. Tracy got back from the factory with his Locomobile yesterday and gave it an easy try-out this morning. Christie has been at work a week over some additions and alterations to his car. Dingley got back to Garden City with his four-cylinder Pope-Toledo on Thursday and in his try-out this morning went a bit faster than his first lap in the eliminating race, which he did in 27:58, the fastest of the race. Lytle was due to reach Pope circle yesterday, but was not reported on the course this morning.

In the hurrah that is being made over the practice of the foreigners one hears little mention of the Americans. The latter as yet have not made any high speed attempts and are making confidants of no one as to their hopes or plans for the race. Dingley, Tracy and White are generally estimated as having the best chance at making a creditable showing. Christie and Lytle are regarded as big gambles. The former's great speed is recognized, and should any great surprise be sprung by the Americans it is surmised that it will come either from White or Christie.

Automobilists who have persisted in speeding over the course have fallen into the time traps literally by the dozens. Included among the victims have been Chairman Morrell himself, and several of

NAZARRI



CEDRINO



CHEVROLET



SARTORI



KEENE



CAMPBELL



SISZ

the foreign drivers. The uniform fine has been \$25.

Some nasty stories have been brought to Chairman Morrell of obstructions encountered on the track. In view of them he will have the course patrolled the entire night before the race. The deputies and spectators will protect the circuit on the day of the race.

Caillois, who finished second to Thery in the Bennett cup race, cables that he will reach here the night before the race and asks for an automobile to meet him at the dock to hurry him to the course.

After all, Webb Jay will not see the race. He will be moved from the hospital to the Iroquois hotel tomorrow, where he will remain for a week before returning to Cleveland. It was hard to persuade him that the journey and excitement of the race would be too risky a venture for him.

SKETCH OF THE DRIVERS

Of the twenty men named in this year's Vanderbilt cup race, only four of them started in the initial event—Campbell, Tracy, Lytle and Sartori. Seven of the twenty drove in the Bennett this year—Jenatzy, Duray, Dingley, Lancia, Tracy, Nazzari and Lytle.

Jenatzy, billed to lead off, won the Bennett 2 years ago and was second to Thery in Germany in 1904. He is a Belgian and an electrical engineer by profession. He is the veteran of the crowd, having been one of the five competitors in the first

Bennett. He has the reputation for being a daring driver, ever ready to take a chance in order to win. He drives a Mercedes.

Duray, of the French team, in a De Dietrich, will chase Jenatzy down the long, yellow road on Long Island and will be one of the favorites, because of his showing in European road races this year. He finished sixth in the Bennett, third in the French trials, seventh in the Ardennes circuit and second in the Florio. He is also famous as a record-breaker.

Dingley, in a Pope-Toledo, starts third and is the first American off. His win in the trial last month was his greatest motoring achievement, for he failed to finish in the Bennett. He is a Californian and gained his reputation by driving a 24-horsepower Pope car a mile in 1 minute $\frac{3}{4}$ seconds in competition.

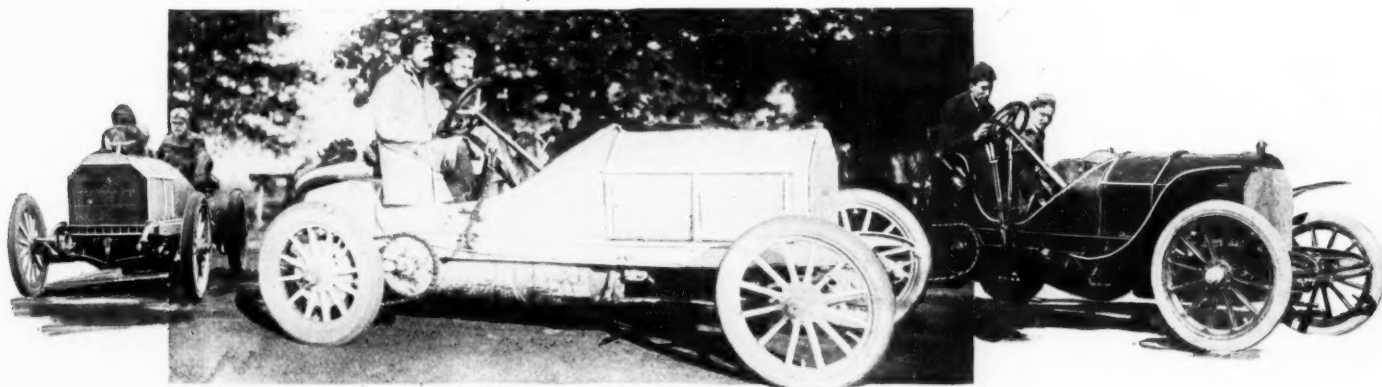
Lancia, in a Fiat, fourth to start and the leader of the Italian team, was famous only as a successful driver in touring events, up to last year, made his reputation by his showing in this year's Bennett,

in which he threatened to beat Thery, leading the latter at one time, but being put out by a radiator accident. He was also a competitor in the 1904 Bennett, finishing eighth. Lancia ran third in the Florio.

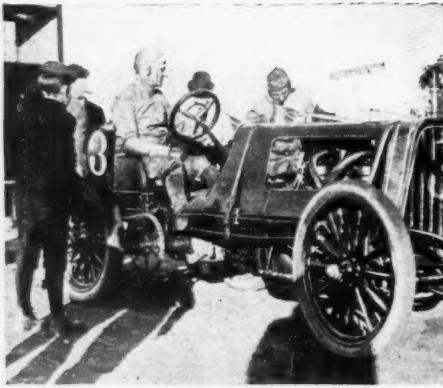
Foxhall Keene, general all-around sportsman, equally good at golf, polo or any other sport he takes up, had the supposedly unlucky number, 13. He is an American, although driving a car for Germany. He started in the Bennett race a few years ago, and is a careful and skilled motorist. He drives a Mercedes and starts fifth.

Wagner, sixth to start, is one of the French representatives who failed to qualify in the French eliminating trials, but who got on France's Vanderbilt team through the scratching of Thery and Caillois. Wagner finished fourth in the trials, just missing a place in the big race. He also started in the Ardennes circuit race, landing fourth money, while in the Florio cup race he finished eighth. He is in a Darraq.

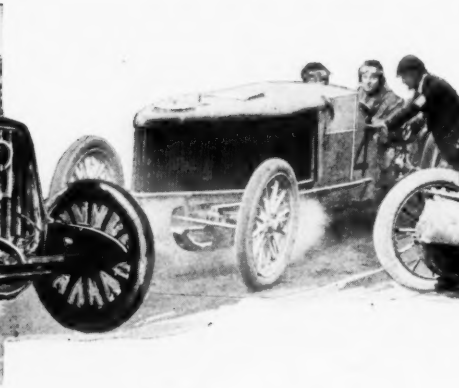
Tracy, seventh to start, was runner up to Dingley in the trial. Tracy gained his technical education as an apprentice in British railroad engine shops and in 1898 built a gasoline motor of his own, while employed as an engineer in a New York apartment house. He drove the Bennett Peerless racer 1 mile in 55 $\frac{1}{2}$ seconds at Ormond in January, 1904. He also took part in the Cuban road race last year, fin-



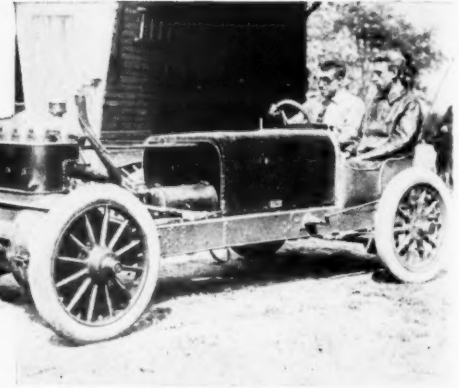
THREE OF THE GERMAN TEAM, JENATZY, KEENE AND CAMPBELL, IN MERCEDES MACHINES



DINGLEY'S POPE-TOLEDO



THE WHITE STEAMER



CHRISTIE'S FRONT-DRIVE

ishing second to Carricaburu, losing by only 30 seconds. His car is a Locomobile.

Nazzari, the Fiat Italian, who starts eighth, is renowned chiefly for the race he put up in this year's Bennett event, in which he finished second to Thery, beaten less than 17 minutes. He also competed in the Florio cup race, but sixth was the best he could get.

John B. Warden, Mercedes, starting ninth and representing Germany, is one of the two driving his own car. He is a man of international fame and in last year's Bennett drove a Mercedes car for Austria, dropping out in the third lap.

Sisz, Renault, who starts tenth, has not done much in road competition this year. He started in the French trial, but fifth was his fate in that event.

Christie, in a Christie, billed to leave eleventh, has made a great reputation for his Blue Flyer on the beach courses at Ormond and Cape May. So great was the confidence of the cup commission in his ability to make a showing with his car in the big race that he was unhesitatingly selected when the commission made up the team on its own accord.

Cedrino, in a Fiat, the Italian, No. 12 on the sheet, has done fairly well in track and beach competition in America this year. He has only been in the country a short time, coming here with an established reputation as a speed merchant on the other side.

Campbell, Mercedes, who gets away ninth, was substituted on the German team because of the withdrawal of Baron de Caters. Campbell was the first to start in the Vanderbilt last year, finishing fifth.

Heath, Panhard, starts fourteenth. He

is the winner of the first Vanderbilt and since that victory has been out of the racing game. He comes out of his retirement in an effort to repeat his success of a year ago. Heath is an American by birth, but has resided in Europe for years.

Lytle, Pope-Toledo, fifteenth away, has the unique distinction of being the only American who ever finished a Bennett race. Lytle has been driving motor cars since 1895, when he handled a Duryea in the London to Brighton race, which he won. He also took part in Chicago and New York races the same year. He is driving one of the selected cars for America.

Chevrolet, No. 16, is inexperienced in road racing, but in the short time he has been before the American public as a track racer he has demonstrated his ability, having repeatedly beaten Barney Oldfield and having smashed the 1-mile record on the Morris park track. He is in as an Italian representative, being at the wheel of Major Miller's Fiat.

Hemery, No. 18, of the French team, in

GEORGE HEATH



a Darracq, is one of the favorites because of his showing in the Ardennes circuit race, which he won from a crack field. He was also in the French trials, but finished ninth. He was picked to win the Florio cup, but Raggio, Duray and Lancia slipped in ahead of him.

White, No. 19, is the last American to start. He will be at the wheel of the only steam car in the race, for which reason his work will be watched with interest. His only racing experience was in the American trial, in which he failed to finish. The commission, however, picked the White as one of the American team.

Sartori will start last and will represent Italy in the Fiat car nominated by the donor of the cup, A. G. Vanderbilt, Jr. Sartori was in last year's Vanderbilt, too, but one lap settled him. On the track Sartori has been a good man in his time, although now he is out of that branch of the sport.

FIRST VANDERBILT RACE

Since the running of the first Vanderbilt cup race there has come a new generation of motorists, enthusiasts all of them, but for the most part unfamiliar with America's great international road race. It is for the benefit of the recruits that MOTOR AGE delves into history and repeats what the majority of automobilists know, for few forget what happened one short year ago—how George Heath, representing France and driving a 90-horsepower Panhard, won the cup by such a narrow margin from Albert Clement, Jr., also a French team man, in a Clement-Bayard, that it was some little time before the real winner was known; how Herbert



HEMERY



DURAY



WAGNER

WHITE



TRACY



DINGLEY



LYTLE



Lytle, in a little 24-horsepower Pope-Toledo, struggled gamely through the crowd which overran the course, and finished third, and all the other interesting incidents connected with this motoring demonstration over the Long Island roads. The four countries that will again strive for the cup Saturday—France, Germany, Italy and America—were represented in the first contest for the trophy, which is evidently destined to become fully as famous as is the America's cup in the yachting world.

Seventeen nominees started, the French team being made up of Gabriel, in a 90-horsepower de Dietrich; George Heath, in a 90-horsepower Panhard; M. G. Bernin, in a 90-horsepower Renault; Albert Clement, Jr., in a 90-horsepower Clement-Bayard; Tarte, in a 90-horsepower Panhard, and Teste, in a 90-horsepower Panhard. Representing Germany there were A. L. Campbell, in a 60-horsepower Mercedes; George Arents, Jr., in a 60-horsepower Mercedes; E. E. Hawley, in a 60-horsepower Mercedes, and William Luttgen, in a 60-horsepower Mercedes. Paul Sartori and William Wallace, both in 90-horsepower Fiats, representing Italy, while Joe Tracy, in a 30-horsepower Royal; A. C. Webb, in a 90-horsepower Pope-Toledo; H. H. Lytle, in a 24-horsepower Pope-Toledo; Charles Schmidt, in a 30-horsepower Packard, and Frank Croker, in a 75-horsepower Simplex, carried American colors in the Long Island affair.

Only two of the lot finished the entire 284.4 miles, Heath winning in 5 hours 26 minutes 45 seconds, averaging 52.2 miles



WALTER CHRISTIE

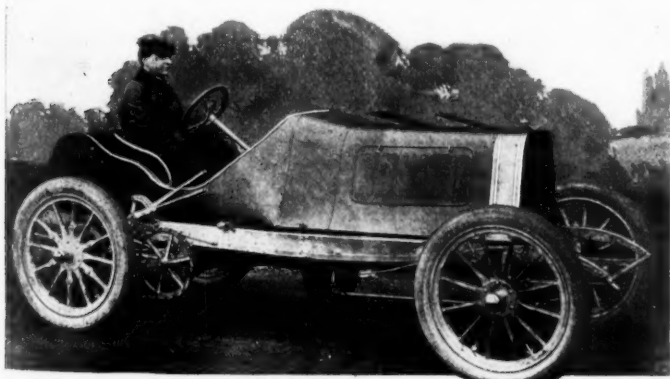
an hour, with Clement second in 5 hours 28 minutes 13 seconds, an average of 52 miles an hour. Lytle went 9 laps, or 255.96 miles, in 6 hours 24 minutes 20 seconds, an average of 40 miles an hour. Schmidt, another American, was fourth, doing eight laps, or 227.52 miles, in 5 hours 50 minutes 27 seconds, 39.1 miles an hour. Campbell was fifth, covering the same distance as Schmidt, in 6 hours 30 minutes 9 seconds—35 miles an hour. Tarte and Luttgen each went 199.08 miles, Gabriel and Croker 170.64 miles, Webb 142.2 miles, Hawley 113.76 miles, Teste 85.32 miles, and Bernin, Werner, Arents, Sartori, Tracy and Wallace 28.44 miles each.

Mishaps were numerous. Tarte's rear tire came off, Gabriel suffered from a broken pump connection, Bernin had a

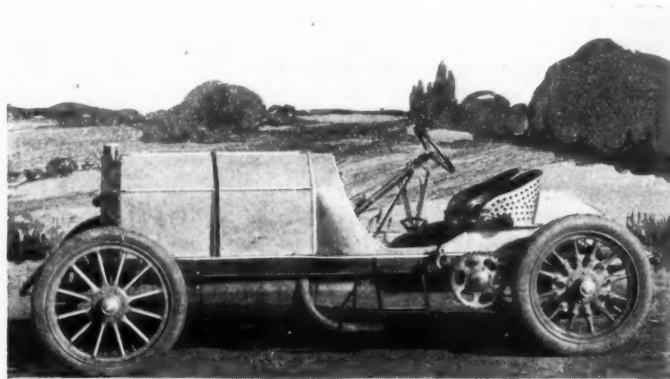
broken propeller shaft, Hawley a broken spring, Arents upset, his mechanic being killed; Werner jammed his brakes at a railroad crossing, Webb ran into a tree, Croker had tire troubles, Tracy was put out by a cracked cylinder, while Wallace and Sartori experienced clutch troubles.

Heath's fastest lap was at the rate of 67.8 miles an hour, Teste being credited with the fastest with a 71-mile average. The total number of miles, exclusive of controls, covered by the seventeen contestants who completed one lap or more, was 2,502.72, or an average of 147.22 miles per car at the general average pace of 39.5 miles an hour. The twelve European cars covered 1,677.96 miles, exclusive of controls, or an average of 139.83 miles per car, at the average rate of speed of 43.9 per hour. The five American cars did 824.76, or an average of 164.95 miles per car and at the average rate of speed of 28.7 miles per hour.


The eight European cars driven by European drivers covered 1,023.84 miles, or 127.98 miles per car; at the average rate of speed of 43.5 miles per hour. The four European cars, driven by American drivers, covered 654.12 miles, or 163.53 miles per car; at the average rate of speed of 44.9 miles per hour. The nine cars of all kinds driven by European drivers covered 1,251.36 miles, or 139.04 miles per car; at the average rate of speed of 43 miles per hour. The eight cars of all kinds driven by American drivers covered 1,251.36 miles, or 156.42 miles per car; at the average rate of speed of 35.4 miles per hour.



THE 90-HORSEPOWER POPE-TOLEDO LYTLE WILL DRIVE



JOE TRACY'S MOUNT, THE THOMAS 120-HORSEPOWER LOCOMOBILE



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AMERICA IN THE VANDERBILT CUP RACE

WHY have the foreign makers entered so many cars in the Vanderbilt cup race? From all that has been said of late respecting the Bennett and Vanderbilt trophies neither is particularly desired by the makers or the associations abroad, yet there must be some good reason for the expenditure of the amount of money needed to enter a team and carry it through a contest of such magnitude.

The fact is the foreign makers do not propose, if possible, to let it be said an American-made car won first or even second honors in its own race, much less in an event on the other side. The foreign makers are wrapped up in the idea that they have the best cars and the fastest cars, and they propose, cost what it may, to show to the effete easterners that America cannot build a car such as they would desire to own. There can be no other reasonable excuse for the entries of the foreign makes of cars other than pure advertising, in light of all that has been said about such contests within the past few weeks, and, this being so, what the foreigners propose to show is apparent.

It is conceded by most well informed people that a foreign car will win the Vanderbilt cup race, but it will not necessarily be because of better design or better mechanical work on the foreign cars; it will be a case of power alone, or possibly power and daring on the part of the drivers, for it must be conceded that in point of daring and experience the foreigners have a great lead on the American drivers.

But the winning of this big American automobile event will not show that American cars are not the equal of the foreign cars, and it will not prevent the American cars from going over the course at a good speed and in finishing in a most satisfactory condition. It will not prevent it being shown that American tires are such as will stand with any made abroad; further, it will not prevent the American drivers from showing that they know how to get their machines around such a course in good shape, which, after all, is the most important thing to be considered.

The American who will recall the last Vanderbilt race will remember how successfully two small-powered home-made cars navigated the course and finished without a scratch. It is true they were only third and fourth, respectively, but it is also true that they finished, while several foreign cars, of which much was expected, did not finish at all. Then and

there did America begin to command the respect of other than its own makers and its own buyers. The demonstration, notwithstanding the absence of a popular win, was sufficient to boom the sale of American cars and to take a little edge off the sale of foreign-made cars, which had, however, made much of a showing in road competition.

American buyers of foreign machines have been led in their selection by speed and reliability shown in big road events, and just as soon as they realize that American machines can show equal reliability, combined with moderate speed, the luscious fruit will pass from foreign hands.

All the makers who entered cars in the Vanderbilt event did not hope to win even the eliminating trial, much less the final, in case their cars qualified. Most of these cars, however, made such a good showing as to prove the reliability of American-made cars.

This is what the race was designed to do. It has fulfilled its mission and the makers have fulfilled theirs. The American buying public has been shown what American cars can do, notwithstanding the fact that some cars were shut out of the big race by the arbitrary action of the cup commission. And there are just as good cars made in this country as those in the trial event, so that the buyer has a big field from which to select in making his purchase for next year.

No matter what may be the result of

DO SOMETHING; D—N IT, DO SOMETHING

AN American jurist, prominent during civil war days, had a son who had never showed tendencies to set the world afire; in fact, he was as near the ne'er do well class as he could be. His father was brilliant as a lawyer and one of the most prominent men of Lincoln's time. He had done everything to encourage his son to be something, but with poor success. Finally, becoming exasperated, he called the young man in and gave him a final talk, ending with this: "D—n it, do something—get drunk, if necessary—but do something."

Well might this advice be directed toward the automobile organizations, large and small, of this country. Winter turns into spring, spring into summer, summer into fall and fall into winter, and beyond hearing what will be done, the time for doing is still far, far in the future.

Saturday's race, American makers will have nothing for which to make apologies, unless it be in speed, and that is largely a matter of power. Power considered, the public may rest assured that America will not be lacking in its showing when the result of the race is known.

The American maker is in the position of having everything to gain and nothing to lose in such a competition; the foreigners are absolutely on the defensive. If an American car should win, it will come pretty near settling the foreign business in America; if the foreign car wins, it will be nothing more than was expected. The American makers are profiting by the race whichever way one may consider it, so that they have been more than justified in entering against the foreign giants—the pick of the world. After the years spent in developing the foreign racing car, the loss of this race will come as a severe blow, but with forethought worthy a prima donna, the foreigners have said this is their last.

The makers of American motor cars will regret any such action quite as much as will those interested in road speed contests simply for the sake of the sport they furnish. The American maker is grateful for the comparisons he has been enabled to make between his car and that of foreign manufacturer, and without the appearance of the foreign car in American contests he may be deprived of making such comparisons and of improving his manufacture as a result of such comparisons. He will, however, have the privilege of sending his car abroad to pit it against those entered in foreign competitions, and this will probably be the result, for it must not be supposed that an American will stop short of convincing the world that he is the equal if not the superior of any maker.

When the foreigner has left the American field of speed trials and the American maker attacks the foreigner on his own ground it will be all the more to the credit of the visitor should he succeed in wrenching from his adversary's grasp the honor for which the foreigner will fight to a finish. All in all, the outcome of this big event will prove profitable to the American in whatever light it may be seen.

It would not require many columns of any paper to tell what the clubs and associations of this country have done for motor'g during the past few years. The automobile orchard is filled to overflowing with ripe fruit, but the fruit is left to rot and to fall to the ground. With the exception of those directly interested, no one will deny this assertion.

Is all the work done? Have motorists received all they might receive? Are all laws reasonable? Are all roads improved? Are all benefits secured? Are all road crossings blessed with guide posts? Are all railroad crossings protected? Are all shipping rates fair? If the answer to these questions is yes, then why the automobile associations? If the answer is no, then why this state of somnambulism?

"D—n it, do something—get drunk, if necessary—but do something."

"Will the auto craze be merely a craze?" asks the Hub, a carriage paper. Will water become water?

Over across the pond they think motor boat racing a frost this year. America has a counter-claim in announcing airship racing a failure.

Megargel has had to use the cable to get him out of difficulties in Wyoming. But that's better than using the telegraph to wire for financial help, as some of the Clarences and Claudes do occasionally.

All those who finish behind the winner of the Vanderbilt cup race will find the little word "if" awfully handy in post-morteming to the newspapers after it is all over.

France declared herself just before the Bennett race and won it. Maybe she believes announcing she will not defend the Vanderbilt cup if she wins it will land that trophy for her, too.

What chance has the football player to gain any notoriety this week with the Giants and the Athletics playing for the baseball championship and the Vanderbilt cup race being run in the east? But football will be IT for the succeeding 30 days.

If there was a babel of voices and a confusion of tongues at the drawing of positions for starting in the Vanderbilt cup race, what may be expected at the finish of the race if America should happen to win the event?

Any motorist who has faced the glaring headlight on the front of an interurban street car will recognize the justice of the kick of his Pennsylvania brethren who want the street car companies to subdue the blinding shaft of light. They certainly want the glim doused.

In forcing the French makers to recognize the right of the English manufacturer to bid first for the business to be found in the United Kingdom by compelling them to exhibit at the Olympia show, John Bull has sort of put one over on his friend, the enemy across the channel.

Last Sunday the driver of a horse struck a match with which to light the lamps on his buggy. His horse became frightened at the flash, ran away, and the man's wife was killed. The only reason an automobile was not blamed for the accident was that no automobile was around at that moment. But it required an automobile and a chauffeur to stop the horse and save the other occupants of the rig, so count one for the automobile, anyway. Furthermore, the chauffeur proved so modest that he left without even making known his address or his identity.

Jump Sparks

The Week

Final preparations made for running of Vanderbilt cup race Saturday; course is re-rolled and fast times are reported to have been made; German team has redrawing because of Keene's objection to No. 13; Basle a doubtful starter.

W. H. Baker, general counsel of National Association of Automobile Dealers, tells of growth of body from seventy-five to 126 members; demands meeting with recognition.

Annual convention of Carriage Builders' National Association, held in Philadelphia, pays considerable attention to automobile industry.

Ballot for space at Olympia show, which opens in England November 17, held, there being 250 stall holders; France forced to exhibit.

Ford, Christie and Thomas cars already entered for Dewar cup race to be run on Coney Island boulevard, New York, next Wednesday.

Annual cross country run of Automobile Club of Philadelphia for Brazier cup won by G. P. Fletcher in a Packard.

Megargel, on his way west, encounters all sorts of difficulties in Bitter creek region of Wyoming.

England holds dust trials which prove nuisance is largely question of speed and dust.

Chronograph Club of Boston secures control of McMurtry timing system.

Entries already coming in for next year's Tourist trophy race.



Madam du Gast, the prominent European motorist, has not been heard from for a long time, having apparently dropped from sight for some unknown reason.



WHERE IS MADAM DU GAST?

Anyway, let's hope the winner of the Vanderbilt, whoever he is, is good to his folks.

What a nice lot of advertising the donor of a trophy receives! Only in the case of young Mr. Vanderbilt he neither needs nor desires it.

England has just held a set of trials to discover a way to lay the dust. Over here the average motorist is scratching under his bonnet to find a scheme to raise the dust.

Even if the Vanderbilt cup does go abroad there is consolation in the knowledge that the America's cup is apt to remain on these shores for some time to come.

Barney Oldfield has been forced to smash into paper fences in order to get his name into the public prints. Even this is forgotten, however, in all this excitement over the Vanderbilt cup race.

Those makers who announce that not for about a month will samples of their 1906 cars be ready for public inspection might be reminded that other makes are not only on view but are on the road in the hands of purchasers.

In the Minneapolis pack has been discovered a joker which thinks it funny to steal cars and scare the owners. When this joker is discovered some of the angry owners will make him look like a torn deuce.

Foxhall Keene balked at being awarded No. 13 in the Vanderbilt race, so a second drawing was had, the number going to Campbell. Another holler followed and so the Stevens Mercedes will carry a letter Y instead of 13. Of course, none of these drivers are superstitious—they just hate to take any chances on Providence.

Some insurance companies which undertook to knock automobiling because it was thought to be a dangerous pastime might show more forethought by encouraging automobiling and recklessness as an assistant business-getter. Insurance companies will need some help pretty soon if they receive a few more rippings up the back such as some have had of late.

Those carriage makers who held their annual convention in Philadelphia couldn't say too many nice things about the automobile. It is plainly evident that these gentlemen are far-seeing enough to know the side the oily, unctuous substance obtained from cream or milk by churning is applied to the article of food made from flour or meal by moistening, kneading and baking.

JUST LIKE AUTOMOBILE SHOW

Thirty-Third Annual Convention of Carriage Builders' National Association Recognizes Motor Car by Giving It and Its Accessories Prominent Part in Exhibition

Philadelphia, Pa., Oct. 9—The thirty-third annual convention of the Carriage Builders' National Association, in session here Tuesday, Wednesday and Thursday of last week, was chiefly remarkable for the part which the automobile played in its deliberations. Not alone in the papers read and the resulting discussions was the automobile feature prominent, but it was particularly evident in the exhibition of carriage and wagon-building accessories, which filled every inch of space of the big Second Regiment armory drill floor, the sessions of the association being held in one of the big company rooms on the Broad street front. The automobile feature was not allowed to overshadow the carriage in any respect, but the body builders who make and in a few instances exhibit tonneaus; the tire people, who slipped in a few solid and pneumatic automobile tires with the numerous reels of carriage tires; the paint and varnish men, who called attention to the enamels especially designed for motor vehicles; the leather and carriage trimming concerns, whose motor car upholsterings occupied prominent places on their booths; the lamp makers, who sprinkled a few automobile lamps among their other wares; the spring cushion manufacturers, who all prominently displayed tonneau and front seats of various shapes and thicknesses and prices in their exhibits; the makers of tops, whose exhibits and catalogues invariably included the extra-long article called for by the automobile—all helped to give the exhibition the appearance of a display of automobile accessories.

The Cleveland Hardware Co., with one of the largest and most comprehensive exhibits in the show, came out boldly and devoted the entire central section of its display to automobile irons. The Fitch Gear Co., of Rome, N. Y., bearded the lion in his den and bare-facedly exhibited a highly-polished carburetor on a velvet-covered table! And so on throughout the show. The deliberations of the association, which lasted 3 days, were punctuated at intervals by references to the relations of the carriage builders to the automobile trade, and the growing necessity of the former cultivating the latter wherever possible, owing to the identity of the two trades, not only in the matter of business, but in the objects they are striving for, such as good roads, uniform freight rates, and other things.

In his address on the opening day, President W. W. Ogden, of Newark, N. J., in the course of his remarks stated the present conditions very plainly to the delegates. He said:

The motor car has rapidly come into prominence during the past decade, and is threatening to compete with the horse-drawn vehicle to a greater or less extent. That the automobile has for the past 2 years especially materially lessened the demand for high class pleasure carriages is admitted on all sides. The enthusiasm of the wealthy and leisure classes

for this new form of recreation is general throughout our land and shows no signs of abatement, and the most pronounced opponents of this new claimant for the rights and privileges of the highways are beginning to admit that the automobile has come to stay. The carriage maker has already been called on by the engine builder to equip his motor with durable and luxurious bodies and to upholster and decorate them as long experience has enabled him to do in the production of the finest pleasure carriages, and those who have taken up this new branch of industry have found the demand constantly increasing. The repairs and renovations of all parts of a motor car, with the exception of the engine and driving gear, should be, and usually is done, in the carriage maker's shop.

It would seem, however, that as a rule the carriage trade has been slow to appreciate the advantage of getting in touch with this new and growing industry. The carriage maker and vendor is better equipped to handle every branch of this business, with the exception of the manufacturer of the engine and driving gear supported in its frame, than are enthusiasts without experience in the manufacture and sale of vehicles. In order to do it, they are obliged to equip salesrooms and plants at heavy expense, no better and oftentimes not so well adapted to the purpose as the plant which the carriage maker and vendor already possesses, and could use for this purpose without increased expense, and it would seem to be in the province and power of the carriage trade to share largely in this new industry. I bring this very important subject to your attention in a general way, believing that it will be a subject of debate and discussion in our business session.

The subject of technical education, always meriting our thoughtful consideration, will come before us at this meeting with new interest. The automobile industry demands a high order of skill in designing and constructing bodies and equipment that will endure the strain of high speed, and the vibration caused by engines of high power, combined with the greatest possible elimination of weight and the graceful outline, and luxurious upholstering, and harmonious colors that wealth and fashion are demanding and are willing to pay liberally for. Conference with gentlemen prominent in the National Association of Automobile Manufacturers leads me to believe that they are willing to join with us in enlarging and extending the work of our technical school, if we will provide a special course in designing and constructing automobile bodies, and make provision for a class to be instructed in the best methods of obtaining attractive and harmonious results in color schemes and upholstering. They may be found ready to contribute liberally to the support of our school if these features are provided for. I trust the suggestion will be considered and discussed in our deliberations.

The question of good roads is another important one that has been before us in the past. We have a powerful ally in the National Association of Automobile Manufacturers and the various automobile clubs that have been organized in the various part of the country. They are all enthusiastic and insistent in their demands for better public highways. They are ready and eager to unite with any and all organizations that will further this important work. I recommend that the matter be given due consideration. It might be thought wise that a committee of our association be given power to act with the organization I have alluded to, in securing action on the part of counties, states and the national government for the creation and betterment of public highways.

The report of the executive committee, which was read by Daniel T. Wilson, of New York, its chairman, still further enlarged upon the opportunities afforded the

carriage trade by the necessities of the automobile builders. It said:

The advent of the automobile has gradually given to the carriage trade a needed expansion, which is now rapidly growing, and, if fostered, bids fair to add very largely to the total volume of business. Especially is this so with the builders of the highest grade of vehicles, where the expenditures for automobiles have curtailed the purchases of horse-drawn vehicles. By constantly catering to the special needs of automobile owners and encouraging the dealings between carriage builders and the users, as well as the chassis builders, there is no doubt the carriage trade will at last reach its greatest development and prove more profitable by making it possible to run the factories steadily throughout the year. Though seemingly an intricate and new industry, in reality it is no more difficult to make and supply the needed carriage parts than to make a horse-drawn vehicle, and we earnestly urge all to seek this trade—which cannot be properly handled by any but carriage builders. When the great demand is somewhat supplied, the business of both horse-drawn and motor-driven vehicles will supply a steady and satisfactory business, as it has already done in France.

In the same report attention is called to "the splendid work of education and real accomplishment that the automobile manufacturer and user have given to the cause of good roads, to the incalculable benefit of the nation."

The annual banquet, which was held in Horticultural hall, was a huge affair, over 600 covers being laid. Almost every speaker made some reference to the automobile and to the advisability of carriage and motor car builders laboring in unison to gain the ends which are so necessary to the success of each.

While no official action was taken on the report of President Ogden on the proposed coalition between the Carriage Builders' National Association and the National Association of Automobile Manufacturers looking to the establishment of a school for technical education in which the carriage men would be taught the secrets of the motor car makers, while they in turn would instruct their friendly rivals in the secrets of their art, the matter received considerable attention at the banquet. In private conversation the diners discussed the proposition in all its angles, most of them coinciding with President Ogden in his belief that it would be a good thing for all concerned. Taken all in all, this convention is bound to result in good all around. The carriage men have no animosity against the motor people, but show a disposition to put their shoulders to the wheel.

Among the 102 separate exhibits the following were more or less intimately identified with the automobile trade:

Tires and Rubber Accessories—Kokomo Rubber Co., Kokomo, Ind.; Sweet Tire & Rubber Co., Batavia, N. Y.; Hartford Rubber Works Co., Hartford, Conn.; Milwaukee Rubber Works Co., Cudahy, Wis.; Goodyear Tire & Rubber Co., Akron, O.; Consolidated Rubber Tire Co., Akron, O.; Republic Rubber Co., Youngstown, O.; Pennsylvania Rubber Co., Jeanette, Pa.; B. F. Goodrich Co., Akron, O.; Firestone Tire & Rubber Co., Akron, O.; Victor Rubber Co.; Stein Double Cushion Tire Co., Akron, O.

Automobile Leathers and Trimmings—Jacob Gerhab, Philadelphia; John F. Kelly Co., Newark, N. J.; Rutter & Turner, New York city; P. Reilly & Son, Newark, N. J.; Louis Dusenbury; Fabrikord Co., Newburgh, N. Y.; George Stengel, Inc., Waverly Park, N. Y.; L. C. Chase & Co.; William H. Horstman & Co., Philadelphia; American Patent Leather Co., Newark, N. J.; E. F. Rogers & Co., Philadelphia.

Automobile Paints, Enamels, Etc.—Acme White Lead & Color Works, Detroit, Mich.; Sherwin-Williams Co.; Clarence Brooks & Co., Newark, N. J.

Automobile Spring Cushion Seats—National Spring & Wire Co., Albion, Mich.; D'Arcy Spring Co., Kalamazoo, Mich.; Jackson Cushion Spring Co., Jackson, Mich.; Novelty Tufting Machine Co., Chicago; Trenton Spring Mattress Co., Trenton, N. J.

Miscellaneous—Weston-Mott Co., Utica, N. Y., wheels; Rose Mfg. Co., lamps; Cleveland Hardware Co., Cleveland, O., automobile irons; Warner Storm Protector Co.; Fitch Gear Co.

Atlanta, Ga., was selected for next year's meeting of the association. A. G. Brunsmann, of Cincinnati, O., was elected president.

TOURIST TROPHY AFTERMATH

London, Sept. 30.—We are still enjoying the aftermath of the Tourist trophy race chiefly out of the mouths of those who did well in it, with disclaimers, dissents and disagreements from those who did not race at all. C. S. Rolls, who no doubt is well pleased, has given his conclusions to the press as follows:

"I see no reason why the Tourist trophy, if properly boomed, should not rival in importance—and even supplant—the Bennett race. Its superiority lies in the important fact that it encourages the production of a type of vehicle which is of interest to the buying public, instead of a more or less freak machine of inordinate horsepower, which is useless—and may be most harmful for ordinary road work. In conclusion, I should add that, looking at the matter simply from the point of view of sport, I am entirely in favor of motor racing in every form, for I personally know of no better sport; but it is idle to suppose that manufacturers who spend thousands of pounds in building and entering for a race do so for the sport of the thing, and, secondly, this is, in my humble opinion, one instance in the history of the English people where the interests of sport do not coincide with the best interests of the movement as a whole."

The following entries have already been received for next year's race. The regulations will undergo a careful examination before they are issued: John S. Napier, Arrol-Johnston; A. Rawlinson, Darraeq; A. Rawlinson, Darraeq; C. S. Rolls, Rolls-Royce; C. S. Rolls, Rolls-Royce; C. S. Rolls, Minerva; T. B. Browne, James & Browne; C. Harman Wigan, Vinot & Deguingand; D. Citroen, Minerva; Captain W. H. Bennett, Dixi; Cyril C. Maudslay, Maudslay; John S. Napier, Arrol-Johnston; R. Dennis, Dennis; R. Dennis, Dennis; Harry Smith.

EMPIRE REGISTRATIONS GROW

Albany, N. Y., Oct. 7.—During the month of September there were 480 cars registered with the secretary of state, which makes the total number registered close to 23,000. The makes of machines leading in the returns were: Cadillac, 45; Pope, 22; Rambler, 20; Oldsmobile, 19; Autocar, 18; Ford, 17; Maxwell, 16; White, 15; Winton, 15; Locomobile, 14; Reo, 14, and Franklin, 11. The leaders among foreign cars were: Panhard, 14; Rochet-Schneider, 13; Renault, 9; Mercedes, 9; Bollée, 6.

FRANCE HAS TO SHOW

John Bull Forces Rival to Take Space in Olympia Exhibition, First of Winter

London, Sept. 30.—The final ballot for space at the Olympia show, which opens on Friday, November 17, has been held, and the full list of exhibitors discloses that there are 250 stall holders. Of these 140 are exhibitors of motor cars, thirty-five of which will exhibit French and other continental models. When the Society of British Motor Manufacturers and Traders decided to alter its Olympia show date from February to November, with the avowed object of antedating and so anticipating the Paris motor exhibition, not a few skeptics ridiculed the idea that the Olympia show could possibly have any serious ambitions of rivalling the magnificent display which the French trade annually provided in the Champs Elysses. But the men who proposed to make this not merely an ambition, but a reality, knew better than their critics the conditions under which the whole situation was being moulded. They were neither deceived by the apparent calm with which the French show promoters received the challenge nor disturbed by the derision of critics on their own side of the straits of Dover. They gave it as their opinion that the French and German firms who were working the British market would either have to come over and help to make the Olympia show a spectacular as well as a trading rival to the Paris show or would hand over their British customers to the prior influence of the Olympia show salesmen. The French trade replied in effect and by deputy that their new models would first appear at their own show, which would always continue to attract all foreign buyers as the leading automobile exposition of the world, supported by the trade leaders of every country. That was either bluff or miscalculation, or both. It did not need the all too suggestive statistics of George Prade to prepare the British trade for a change of French trade policy on the subject, for they knew, through the London concessionaires of the leading French concerns, who were prospective exhibitors at Olympia, that they would have 1906 models on view or none at all. As events have now shown, the commercial strategy of the British trade leaders has been wholly successful. Placed on the horns of a dilemma, the French trade has sacrificed dignity to profit, as most people expected that it would do when it came to a showdown.

The 1906 models of Panhard & Levassor, Mers, Richard-Brasier, Gladiator, de Dion, Clement, Talbot, Darraeq, Vinot & Deguingand, Berliet, Brouhot, Aster, Germain, Martini, de Dietrich, Peugeot, Minerva, Mercedes, Fiat, Itala, etc., are all promised for the opening of the Olympia show. In this way it receives, somewhat unwillingly no doubt, the cachet for which the British trade has been finessing, and as if to emphasize its victory only one English car firm has officially applied for and obtained space at the Paris salon—

Humber & Co., of Nottingham. It is confidently expected that the trading results of Olympia will be such that the French trade will bring forward its show date so as to anticipate Olympia and so the sparring for wind between the two shows will probably prevent an early declaration of dates on either side.

It is, however, quite evident that the Olympia building is entirely inadequate to the consolidated requirements of the British trade and so proposals are on foot to split it into two or possibly three exhibitions, spread over the winter season from early November to early March. The first show would be devoted to pleasure vehicles, so that the continental makers might not draw away British buyers and could themselves have greater show facilities at Olympia. The second would be an industrial and marine motor show and the final a sort of retailers' mart for those who consider that the most suitable time for a motor show is when people are about to restart active motoring—for it is not an all-the-year-round-pastime here.

FOOLISH SORT OF JOKING

Minneapolis, Minn., Oct. 9.—Automobile thieves and practical jokers are making life a burden for owners of cars in Minneapolis and St. Paul this fall. During the past month nearly a dozen machines have disappeared from the streets, or have been taken from the private garage of owners, either by thieves or by friends who sought to scare the owner of the car. The most notable disappearance was that of the 50-horsepower Thomas Flyer belonging to C. R. Lamb, of Minneapolis. The car was taken from in front of the Orpheum theater during the evening performance, and Mr. Lamb has been unable to locate it. Police officials of all cities in Minnesota were sent a description of the car, and the first result was the arrest of a Minneapolis dealer who was on his way to North Dakota to deliver a Model car. The dealer, after some trouble, was released. Many of the cars which have been taken have been later found at the outskirts of the city, much the worse for a hard drive. Asa Paine, racing secretary of the Minneapolis club; A. C. Bennett, Northwestern agent for the Winton, and others declare that the machines are taken by practical jokers, who wish to scare the owners. The police have taken the matter in hand, however, and practical joking in that line is expected to be at a discount from now on.

WILL EXCHANGE PRIVILEGES

New York, Oct. 5.—Following today's meeting of the directors of the American Automobile Association, announcement was made of the conclusion of arrangements for reciprocal exchange of privileges and use of the touring information bureaus by members of the Touring Club of France, the Automobile Club of Great Britain, the Motor Club of Belgium and the American Automobile Association. The A. A. A. will also have an especially appointed consul in Paris to give touring information to touring members. It is expected that later the German Automobile Club will become a party to the quasi-union.

FIGHTS HIS WAY WEST

Megargel Runs Into Many Difficulties Crossing Wyoming Ditches and Gulches

Arco, Idaho, Oct. 11—Special telegram—The Reo Mountaineer arrived here last night and left for Hailey this morning. We were lost in the desert Sunday in a heavy snow storm and arrived at Pocatello nearly frozen. The weather was milder today. There is thick ice every morning and snow on all the mountain tops. The Reo Mountaineer, after some very severe mountain climbing, during which it certainly made good its name, pulled into Montpelier last Thursday night. During the last days on the road it had been mountaineering from morning until night, last night having been spent at Diamondville, Wyo., one of the highest towns in the Rockies.

Rain that held us up at Bitter Creek for 4 days played havoc with the trail all the way across the state of Wyoming. Huge gulleys or gulches, as they are called here, were washed across the trail, averaging several to the mile. Some of these gulches, directly across our path, were some 20 to 30 feet deep, and we had to shovel a road down their sides and up again, generally making use of the cable to haul the Reo Mountaineer up the almost perpendicular sidewalls. The Reo Mountaineer was the first vehicle to tackle the trail after the rain, passing freighters and emigrants at every station, waiting for the roads to improve before setting out again. At one point we thought we were stuck, for a chasm opened up entirely across the road, some 20 feet deep and about 5 feet wide. After shoveling dirt into this hole for some 2 hours without any visible effect, we drove over to the Union Pacific tracks, 2 miles away, and brought two of the widest ties we could find to the hole. Placing these across the gulch, we cautiously drove the Reo over on the ties. I'll bet it will keep some of the freighters and emigrant outfits guessing how they can get their wagons and horses across this hole without bridging the entire chasm.

Bitter creek is a little stream, naturally—so small, in fact, that I've often wondered how it received a place on the map of Wyoming. We drove the Mountaineer across it just east of the Bitter Creek station on the Union Pacific line, the water in the creek at that point being some 3 inches deep. That night it rained and when we attempted to recross the creek at a point some 6 miles below the station known as Point-of-Rocks, we found quite a different proposition before us. The little creek that we had begrundged a place on the map was then a howling torrent, rushing down between its clay banks, tearing them apart and gouging them out until where an almost dry ford had been the day before some 9 feet of water crossed the trail and barred further progress.

I attempted with hip boots to see how

deep it was. A diver's suit would have been more appropriate, I found out a few seconds later as I emerged, dripping wet, after one of the hardest swims in my career. We did find a point where we could jump across, but I'll wager the water at that point, which was only 6 or 7 feet wide, was at least 12 feet deep, and the point where we jumped across was inaccessible for automobiling, even had we been able to bridge the stream. There was nothing to do but camp out on the side of the stream and wait for the water to go down, which we did with the best possible grace, eventually crossing with our cable and windlass in 3 feet of water.

While we have used our cable and windlass several times, we have always managed to attach the end of the cable to a friendly tree, telephone pole or fence post. This was not the case one day last week, and we had to go through the operation of planting a dead man, as it is called in the west. This consists of sinking a piece of timber or bunch of sticks across the road and attaching the cable to the middle, digging a narrow trench for the cable to run in. Fassett dug the grave and didn't get

CAMPING IN A DESERT



SAMPLE OF GRADES ENCOUNTERED BY MEGARGEL

it deep enough, consequently Mr. Dead Man came to life after we had taken a few turns on the windlass. In fact, he came back at us as though he was angry at the idea of being planted. A deeper grave settled him all right and the Reo Mountaineer was soon drawn from an almost bottomless gulch to the top of the embankment.

Towns are very scarce in Wyoming and we loaded up with gasoline at Rawlins, carrying enough, we thought, for the 125-mile stretch to Rock Springs. We, however, hadn't figured on the deep sand, gulches to climb and week's layup for low water at Bitter creek, so our tank gave out, with Rock Springs within sight.

All through Wyoming we had to put up at railroad section houses on the Union Pacific line and our meals were composed of canned goods, even the milk being condensed, for no animal can live on the desert tracks, without railroading hay and grain in from some distant point. Now we are in Idaho and there is green grass to be seen once more, for everybody is irrigating and we have irrigation ditches to cross and recross all day. The improvement in the fare, however, is ample compensation for our trouble in this respect. As we are figuring now, it will be about October 15 when we arrive at Portland and some 12 or 15 days later when the Reo Mountaineer gets into San Francisco. There is grave doubts of our getting across the Sierra Nevada mountains before the heavy winter snows set in, but we are going to attempt it at any rate and trust to be back in New York before the first of the year.—PERCY F. MEGARGEL.

LOSING FIGHT BY STURMEY

London, Sept. 30—The Duryea Power Carriage Co., of Coventry, appears to be in a rather bad way. Henry Sturmeý, who was the founder of the Autocar newspaper and the father of the British automobile press, has fought a long and a gallant fight for Charles Duryea's car on this side, but he has been beaten to his knees and now appeals through the medium of a letter to one of the financial papers for financial aid to carry on the venture. The story of the British Duryea car is an object lesson in the folly of endeavoring to educate the public. It is at least 6 years since Henry Sturmeý determined to abandon all else and push

the Duryea car. It was even then a novel design on this side, but it has since become unique. The public here did not take too kindly at any time to the horizontal engine, principally because of its comparative inaccessibility; but the Duryea fared even worse than the other cars marketed with that type of engines. At any rate the commercial progress was so slow that Henry Sturmeý considered that it must be due to the prejudice against its foreign construction. He accordingly started to manufacture it in Coventry. He invested all his own capital in laying down the plant and buildings for the purpose of getting the assistance of the big engineering firm of Williams & Robinson of Rugby for parts too heavy for his own works. The car has shown up well wherever it has been put into speed competitions and Sturmeý has kept it fairly well before the automobile public. But after less than 2 years' trading with the British-built Duryea, the company he founded went into voluntary liquidation with a view to reconstruction. But apparently the proposed reconstruction has not eventuated, hence his present appeal. He asks for any sum from \$25,000 to \$250,000 and offers as an inducement figures showing the probability of an output of 200 cars per annum. That seems a modest ambition, but it is very doubtful if the appeal will secure the desired result. The constructional side of the motor car indu-

try does not seem to attract British investors, although the situation is not quite as bad as it was some short time ago.

The English Duryea car has had considerable success in many countries where it has been used, particularly in the Orient, where a considerable number has been sold. In Japan there are many Duryeas and nothing but praise has come from their owners, so its failure to catch on is attributable to lack of style rather than to mechanical defects.

DUST TRIALS IN ENGLAND

London, Sept. 30—The Automobile Club of Great Britain and Ireland dust trials on the London to Bath road, near Maidenhead, last Saturday have not gone far to aid interests in the manner hoped. The conditions for testing were suitable, a fine stretch of deep natural dust being secured, along which ordinary traffic was also passing as well as the baker's dozen of cars impressed into the club's service. All but one of these were ordinary touring vehicles, ranging in power from the single-cylinder 6 horsepower to the four-cylinder 25 horsepower. One car had special attachments to wheels and under the frame intended to demonstrate that the dust could be prevented from rising, but results did not justify that sanguine view. What was indicated and clearly was that the dust nuisance is largely a matter of speed—and dust. At 15 miles per hour the passing cars did not cause sufficient dust disturbance to make it at all objectionable. At 20 it began to be so, but at 25 miles per hour all the cars threw up dense clouds. In this particular the motorists have furnished some evidence against their own contention that it is imperative that the system of road surfacing now pursued is obsolete and must be amended in the interests of progress. Fifteen miles an hour is a funeral pace for a big-powered motor car driver, but as an alternative to a long and costly alteration of the main roads of the country it is to be feared that everybody else will consider the problem one easy of solution, especially as it will furnish one more reason why motorists should not be allowed to drive at any pace in excess of 20 miles an hour.

GETS M'MURTRY TIMER

Boston, Mass., Oct. 10—The Chronograph Club of Boston has secured the sole and exclusive right to use the McMurtry timing apparatus, which proved so successful at the last Ormond meet, and which has met with the approval of all interested in the accurate timing of motor contests. Mr. McMurtry was in Boston recently and concluded negotiations with President John C. Kerrison which was commenced over a year ago. The club has agreed that the apparatus shall be used only at sanctioned meets, while on the other hand Mr. McMurtry has entered into contract that the apparatus shall be used only with the consent of the local club, and when operated by himself or others delegated by the Boston organization. It is not generally well known, but it is a fact that Mr. McMurtry is the only honorary member of this 12-year-old club.

ODD RACE OF QUAKERS

Fletcher, in Packard, Wins Cross-Country Run of Philadelphia Automobile Club

Philadelphia, Pa., Oct. 9—The annual cross-country run of the Automobile Club of Philadelphia for the Brazier cup was run off last Saturday over a course 109½ miles in length, and was won by G. P. Fletcher, who drove his 28-horsepower Packard over the route in 5 hours 1 minute. There were nine starters, and of these six finished. The course was a four-legged one, with checking points at each corner—at Newton, Norristown, Wilmington and the club house. The affair was a handicap and 5 minutes was allowed to elapse between starts. The first car sent away was Horace Allen's 4-horsepower Oldsmobile, at 8:15 a. m. One hour was allowed the contestants for luncheon, which could be taken anywhere along the route. Although Fletcher has won the cup beyond possibility of a doubt, one of the rules of the run is that none of the contestants shall be warned or apprehended for fast driving under penalty of disqualification. Until reports have been received from every point along the course, the runs and tours committee, which has charge of the event, will reserve its decision. One of the contestants, William Longatreh, driving a 16-horsepower Maxwell, was unfortunate enough to be thrown out of the race for breaking the speed ordinance near Norristown. Two others—E. L. Hawkins, in a 10-horsepower Autocar, and Horace Allen, in a 4-horsepower Oldsmobile—met with accidents near the same place and were compelled to abandon the run. Fletcher, who started at 8:50—next to last—swung into the lead on the next to the last leg, and reached Wilmington, the last checking point, 23 minutes ahead of the second man.

No definite route was laid down for the contestants to follow, the only requirement being that their time cards should be signed by the umpire stationed at each corner of the course. The roads were in fair condition and the weather glorious. The six contestants finished in the following order:

Name	H.P. Car	Correct time
G. P. Fletcher....	28..Packard	5:01:00
J. R. Seeds....	15-20..Locomobile	5:41:30
C. W. Kelsey.....	8..Maxwell	6:04:00
W. M. Swain.....	24..Winton	6:28:00
C. J. Swain.....	40-50..Winton	6:42:30
Allan Nood, III....	4..Oldsmobile	7:41:30

As usual on the annual race day, there was a smoker in the evening at the club house, at which upwards of 200 members and their friends were present.

NEW TRADE PRACTICE

Buffalo, N. Y., Oct. 7—Swapping automobiles may become as common a practice as hoss-trading used to be if the practices of some Buffalo dealers are followed by others. Comus Penney, who recently became a member of the Jaynes Automobile Co., started out the other day for a drive to Lockport. When about half way to the lock city he met William A. Heacock, of Lockport, driving toward Buffalo. Hea-

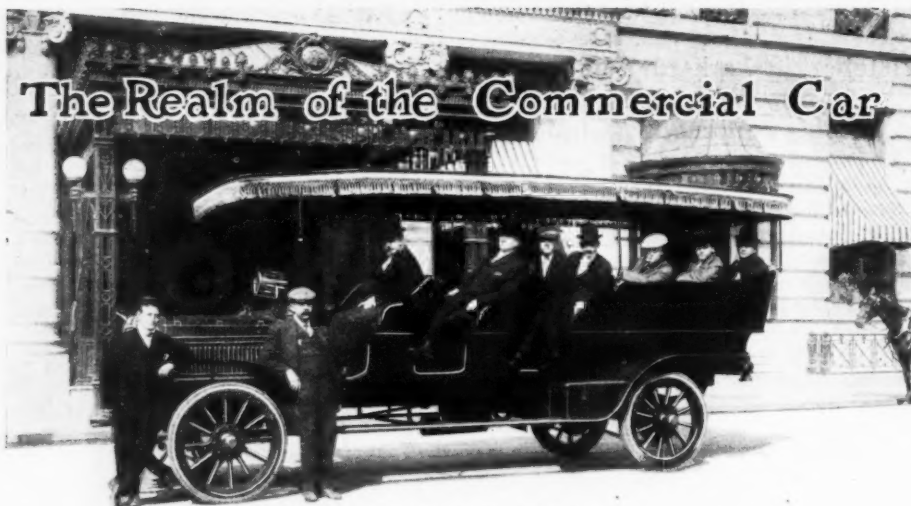
cock knew Penney slightly and knew that he had gone into the automobile business. So he took a chance that Penney might be willing to make a trade. They dickered for a time and finally the deal ended with Penney driving back to Buffalo in the machine in which Heacock had started out, while Heacock returned home with a new car. Not to be outdone in respect to quick deals, Ralph Butler, of the Jaynes company's force, started out yesterday to drive to his home in East Aurora. On the way he met Dr. B. D. Shedd, of Arcade, who was driving to Buffalo. The two exchanged greetings and soon dropped into discussion of the merits of their respective cars. Butler telephoned the Jaynes office this evening that he had made a trade with Shedd and the terms he got were approved.

TRADE ASSOCIATION GROWS

New York, Oct. 6—W. H. Baker, general counsel of the National Association of Automobile Dealers, called at the MOTOR AGE eastern office today. In the course of a lengthy conversation on the progress and objects of the association he said: "In the past month our membership has increased from seventy-five to 125, which includes only dealers of recognized standing. We believe that the future prosperity of the business and proper restriction of production will lie largely with such an organization as ours, providing it be properly conducted. We are asking the coöperation of the manufacturers in the creation of a reliable distributing body. Our demands are meeting with recognition. They are not unreasonable. We ask for the prepayment of freight charges, the complete equipment of cars with the sundries necessary to run them and the omission of equipment that belongs more properly to the agent to sell, a rearrangement of the discounts on the basis of business done and the type of car, a more reasonable price for demonstrating cars, a cutting off of discounts to owners banding together to get wholesale discount, and that the smaller dealers be compelled to take subagencies from the larger dealers. We demand of the tire companies that they leave to us the selling of tires. We want makers to be bound to make the deliveries they contract for and that the dealer in return be compelled to accept all cars for which he may have contracted. Makers are becoming convinced that what we ask is reasonable and that we are factors in their business, worthy of help and encouragement."

DEWAR RACE NEXT WEEK

New York, Oct. 11—The entries of the Ford, Christie and Thomas cars and at least one of the Darraeqs is assured for the Dewar cup race, which will be run over the trotting speedway mile on the Coney Island boulevard next Wednesday morning. The Fiat directors are to discuss today making an entry. Charles Heineman is willing to start the Ross steamer, the holder of the cup, if a driver can be found for it. Joe Nelson is under consideration. When the Vanderbilt race is over it is expected that the European cracks will be ready to consider competition for the cup. They are too busy now to talk anything but Vanderbilt race.



AN ATLANTIC COAST MOTOR TALLY-HO

SUMMER RESORT TALLY-HO

THE MOTOR Tally-Ho Co., of New York, is one of the leading concerns devoting its exclusive efforts to running pleasure automobiles between the many summer resorts in New Jersey and along the Atlantic coast. The observation cars used by the company are large sixteen to twenty-four passenger vehicles, provided with enclosed seating space or canopy tops, as the occasion demands. Two of the observation routes conducted by it are the Asbury Park route along the New Jersey coast and the other a run from Philadelphia through New Jersey to Atlantic City. The former route has been used since 1904, but the latter is new, it being scarcely a month since the first car commenced regular trips. To be abreast with the times and make the running of observation machines an all-the-year-round business the Motor Tally-Ho Co. operates its machines in the winter season in and around New Orleans and on the Florida routes, where the popularity of the big twenty-passenger machine is as great, if not more so, than along the better known northern shore points. The machines used on all of the routes are known as the Manhattans and are built by the Mack Bros. Motor Co., of Allentown, Pa.

Since the first placing of the first car at Asbury Park, a little more than a year ago, and the subsequent rushing of two others in response to the feverish message, "Send more cars as soon as possible; we can't handle the crowd!" the success of the Motor Tally-Ho Co. has been a surprise. Breakdowns were frequent in those early days at Asbury Park. They always came at the most unfortunate moment. Scores of people were often turned away after reluctantly receiving their money back; or, worse, stranded on a country road and ingloriously towed to their destination or sent home on the train. In spite of these drawbacks, however, the enterprise flourished; and during the short Asbury Park season of 6 weeks, the three cars, each holding from twelve to fourteen persons, carried no fewer than 5,518 summer visitors to Long Branch, Spring Lake, Sea Girt and Lakewood. This is a round trip of 45 miles, through wooded roads and farming lands; and gives an opportunity to such as desire it to inspect the estate

of George Gould. The way back to Asbury Park runs through the deserted village of Allaire, a romantic spot, once the home of some 5,000 busy workmen and their families. Here was the Allaire Iron Works, which did an enormous business until the discovery of the Pennsylvania coal fields brought about the wholesale desertion of business and dwelling houses, which makes the village one of the show places of that region today.

Three hours are allowed for this Lakewood trip; this includes a rest of $\frac{1}{2}$ hour; for although the cars have a maximum speed of from 30 to 35 miles an hour, it is not considered desirable, for purposes of observation, to go so fast. They average from 15 to 20 miles an hour on the regular trips, and there seems to have been no desire for more rapid motion on the part of the passengers. Charter parties have been an important feature of this season's work, and there were days when three and four cars were engaged in this way by persons preferring to ride with their friends rather than with strangers on the regular trips.

The cars have 60-horsepower motors, and carry fourteen people comfortably. They run smoothly and can be relied on to make a long journey without mishap. The writer recently had the good fortune to take the 60-mile run from Philadelphia to Atlantic City, and on the following day the 100-mile trip from Atlantic City to Asbury Park. The performance of the cars on both occasions was admirable. They maintained an average speed of 15 miles an hour and ran through without a hitch of any kind. The ride from Atlantic City to Asbury Park was particularly enjoyable. The road nearly the entire distance lies along the coast; through cozy villages and thriving towns, where the leisure populace turns out in large numbers to view the big automobiles; past prosperous farms, and fragrant groves of pine and scrub oak. Then come

the salt marshes, always a delight to the artistically constituted person. A stop is made at Toms river for dinner, where an excellent meal is to be had at a reasonable price. Thus rested and refreshed the remainder of the journey is accomplished without fatigue.

The president and general manager of the Motor Tally-Ho Co. is George H. Wright. Willis H. Heath is the treasurer. The main office is in the Flatiron building at Twenty-third street and Broadway, New York. The men who operate these large machines are selected with great care, and are necessarily intelligent and resourceful, both as drivers and mechanics. During 15 months of almost continuous running the company has not had an accident. By accident is meant any mishap that could place the lives of passengers in jeopardy for a single instant.

As to the operation of these cars, the management has furnished the following facts: The amount of gasoline consumed is $\frac{1}{2}$ gallon per mile, and the average cost of operation, including work on repairs, 9 $\frac{1}{2}$ cents per mile. This does not include the cost of duplicate parts, such as tires, which, by the way, are of solid rubber, since the weight of the machines is about 6,000 pounds. The tires are made by the Hartford Rubber Co., and are 4 $\frac{1}{2}$ and 5-inch Turner Standard B, 36 inches outside diameter. The cars run on an average 110 miles each a day; the maximum distance covered by any one car in one day being 160 miles.

During the New Orleans season—from December to April—three cars ran 9,954 miles and carried 8,456 people, while this season in Asbury Park shows a record of 10,813 miles and 7,067 people carried. Directly on their return from New Orleans and before the opening of the Asbury Park season, they ran 5,131 miles and carried 7,320 passengers in Brooklyn.

The Cuba Motor Tally-Ho Co., an offshoot of this company, is now operating Manhattan cars similar to those used in Asbury Park between Havana and Guerles and also from Havana to Guanajag, as well as in the city of Matanzas. This company, which is under the management of C. E. Codd, has an order placed with the Mack Bros. for ten more cars of the same size and design, which they will place in Cienfuegos, Remedios and Caberrien. They are also putting six 5-ton trucks on the road



A MOTOR TALLY-HO'S LOAD

for handling pineapples and milk around Havana. Special freight carrying bodies necessary for such work are required, but in all other details the construction will be identical with that of the observation machine and the strength of all parts well proportioned.

After a week's operation, with the most delightful weather conditions imaginable, the new automobile stage line running between Philadelphia and Atlantic City has leaped into popularity at a bound, and places on the single car, the Manhattan, now running must be booked several days in advance. The time schedule calls for shoreward trips, starting from the Bellevue-Stratford in Philadelphia at 9:30 a. m. Tuesdays, Thursdays and Saturdays. Return trips are made on Mondays, Wednesdays and Fridays, starting from Hotel Chalfonte, Atlantic City, at the same hour. During the past week the car's full capacity of twenty passengers has always been taxed, with an overflow which must content itself with future bookings.

The Manhattan's frame is built of channel steel 5 inches deep, and the wheel base measures 12 feet, with wheels of the Sarven patent, 2-inch spokes, and equipped with 4½-inch solid Turner endless tires, which the Marek company, the builder, has decided best meets the requirements for heavy cars designed for passenger service. The springs are half-elliptic, of Swedish oil-tempered steel made especially to carry the load. The four-cylinder vertical motor has a 6-inch stroke, with a 5½-inch bore. The crank case is of aluminum, the shaft itself being made of the best nickel steel. The valves, all on one side, are drop-forged nickel steel, both inlet and exhaust being of the same size and all interchangeable. The ignition is by the Remy jump-spark magneto, with dry cells for starting only.

The sliding gear transmission is of entirely new construction, with three speeds forward and reverse; the gears are made of chrome nickel steel, and the drive is direct on the high gear on the mainshaft. The bearings on the axle and countershaft are of the Timken roller type. The bearings on the transmission are made by the Hess-Bright Co., and are similar to those used on Mercedes, Panhard and many other large foreign touring cars. The carbureter is of the new Holley pattern, while the circulating pump, of the centrifugal type, is peculiar to the Mack cars and is made after the company's own designs. The force-feed oilers are mechanically operated. The clutch is of the conical type, leather covered, 17 inches in diameter and controlled with the regular French system; all foot levers and hand levers interlocking with the clutch. The differential, of the bevel gear type, has the countershaft riveted to master gears solidly enclosed. The chain is of the Whitney roller pattern, 1½-inch pitch. There is an emergency brake on each rear hub, besides two on the countershaft. The radiator is of the copper tube disk type, with fan for circulation, the bonnet being of steel with trimmings of brass.

The body is designed to carry twenty pas-

sengers—four on the front seat, five each on the second and third and six in the tonneau. The speed of the motor is normally 1,000 revolutions per minute, and at this rate the car is geared to do 18.7 miles per hour; this speed can be maintained with a full load over the generally level roads between Philadelphia and Atlantic City. A speed of 30 miles per hour is possible under the most favorable conditions, while on a 25 per cent grade 6 miles an hour can be made on the low gear; an 8 per cent grade can be taken on the high gear with twenty passengers aboard. The 24-gallon tank contains sufficient for a 120-mile run over ordinary country roads, it having been demonstrated that the fuel consumption averages just about 1 gallon for each 5 miles. The consumption of cylinder oil on the same basis will approximate ½ gallon and machine oil 1 quart.



ONE OF THE CARS AS IT APPEARS WHEN EMPTY

During the past week a careful record has been kept of the operating cost, with the following result, on the 100-mile basis:

Gasoline, 20 gallons at 15c.....	\$ 3.00
Cylinder oil and grease.....	.60
Wear of rubber tires, estimated at 2½c per mile	2.50
Housing, cleaning and care of car.....	2.00
Operator's wages, etc.....	3.00

Total cost per 100 miles.....\$11.10

The Mack company, whose plant is located at Allentown, Pa., about 60 miles north of Philadelphia, has built fifty-one of these large gasoline passenger buses—thirty-four in the past 12 months—and all of them are still in operation. In addition to its passenger cars it has built and delivered several safe and brewery trucks, railroad cars and delivery wagons, besides separate engines for motor boats and automobiles.

GERMAN POSTAL PROGRESS

Germany leads all other countries in the use of motor wagons for covering postal routes in her great cities and for her leading postal routes in rural districts. This is due mostly to the poor railroad service given in many parts of the country. In these districts horse stages have been relied upon for years to deliver and collect the mails. The urgent calls for faster service, coming as they have from all parts of the country, have, however, led the postal authorities to make special tests with motor wagons. These tests have been under way for several months, until now the authorities, after reports made by their

technical experts who followed the tests, have purchased a few machines for regular use.

The machines under test are not restricted to any form of power. Gasoline, alcohol and benzine motors, however, were preferred. Steam and electric machines were not discouraged. Of the three classes—gasoline, alcohol and benzine—perhaps alcohol was most favorably considered, partly because of the greater expense of gasoline and the home production of alcohol from vegetables, making it the cheapest and most convenient. Alcohol has been experimented with for a few years and now carbureters have been made for its use in which it offers no greater difficulties than ordinary gasoline.

The machine favored by the postal authorities and the latest to be purchased is an 8-horsepower N. A. G. motor van designed to carry a load of 3,300 pounds. Before making the final purchase a special test of 10 days was given the machine, in which it showed up to great advantage both in economy of fuel, load carrying and ease of control. The speed feature, being restricted to 12 miles per hour, did not enter largely into the test. The machine was manufactured at the factory of the Neue Automobil Gesellschaft, of Berlin, and is a regular stock chassis, fitted with specially made body answering the requirements of the postal department. The motor has two vertical cylinders mounted beneath a very short bonnet in front of the footboard, a cellular radiator forming the forward end of the bonnet. The fly wheel is practically beneath the forward part of the footboard. The sliding gear case is beneath the removable board of the footboard. Drive from the gear case is through a short shaft to the countershaft, on the ends of which are sprockets for double side chain drive. The braking system includes regular lever-applied emergency brakes on the rear hubs and pedal-applied ones on the drive shaft in the rear of the gear case. The steering wheel is on the top of a vertical column and carries on it spark and throttle control, as well as the change-speed lever, the only side lever being the emergency brake one.

The carrying compartment resembles a small undertaker's wagon with plain, tightly closed sides and a rear entrance. It is much higher than the head of the driver and the front end forms the back of the operator's seat. The body is made weather and fireproof, the latter used as an extra precaution. For work in rough districts sprags are dropped from the centers of the side pieces of the frame and can be raised or lowered at will from the seat. A further precaution is added in shoe brakes applied to the rear tires as well as the regular hub ones. The running gear is strongly made, being intended for heavy service and long life. Artillery wood wheels, the front ones of medium weight and the rear ones very heavily constructed, are used. On both are heavy solid rubber tires with smooth tread. The double rubber tire is being fitted to a few



NEW REO TEN-PASSENGER MOTOR BUS

machines, but the pneumatic has been resolutely ruled against.

At the present time the Berlin authorities are also experimenting with a type of 3-wheel machine for use over light routes in the cities. The machine has a carrying capacity of 200 pounds and is propelled by a 3-horsepower motor. The carrying box is in front of the driver, who sits high and well to the rear, leaving the motor and carrying capacity well in front of him. Part of the work of these three-wheelers is the carrying of the mails from the main postoffice to the city branches. So great has been the success attending their use that the authorities hope to remove all horse vehicles and use the motors instead. This type of vehicle, while light in weight and cheap in maintenance, has good speed and carrying capacity.

MOTOR FIRE ENGINE

Will the large, cumbrous, rattling fire engine be replaced by small gasoline motors mounted on little two-wheel carriages that can be pulled along by a couple of men and taken in places where the big horse machines could never reach? This seems to be no pipe dream at the present moment, for an English factory has brought out its first little wonder in the shape of a single cylinder gasoline motor mounted vertically on the front of a cart, and behind it, and connected up, is a rotary pump with connection for rubber hose from the hydrants and other to the hose for conducting the water to the flames. The whole outfit is little higher than a small boy and is drawn by a pole with end cross-piece, which can be taken hold of by either two or four men and the motor drawn at a fast run to the scene of the fire. Where the blaze is on the ground floor and has not attained headway before the arrival of the miniature brigade, the little wonder can cope successfully with the fire, but where headway has been made little can be done. The scope of such a fire engine is in crowded parts of cities where they can be installed by private concerns, the cost of purchase being little and the method of operation as simple as

a chemical engine. It would be possible for a firm of any standing to have one or more in its place and several employees capable of running it. The motor is an 8-horsepower de Dion, the weight of the outfit is 360 pounds, and it will throw a stream of water to a height of 59 feet. With the motor running at normal speed the discharge pressure is 90 pounds per square inch and the output 20 cubic meters per hour. As yet this motor fire engine has not come into general use, but those who

have seen demonstrations of this useful little machine predict for it great possibilities when its practicability is generally understood by the property owners, whose interests it is designed to conserve.

AN ACME DEMONSTRATION

Carson, Pirie, Scott & Co., one of Chicago's largest retail merchandise houses, made a 3-day demonstration recently with an Acme delivery wagon. The machine used was the two-cylinder machine recently described in MOTOR AGE. On October 3, 4 and 5 the demonstration was made. On October 3 the first load left the store at 9:15 on the South Park route, carrying 108 packages. The assistant shipping clerk, a regular wagon driver, and package boy accompanied the car, in addition to the regular driver of the machine. The route of delivery covered that territory from Sixty-first street to Seventy-fifth street on the south, and Stony Island avenue to Wentworth avenue on the west. The entire load was delivered at 1:10 and the wagon had returned to the store at 1:45 for the second load, which left the store at 3 o'clock with thirty-seven packages, covering the same territory as the first load in the morning. The entire load was delivered and the car returned to the store at 6. On these two trips the amount of gasoline consumed was 7 gallons and $\frac{1}{4}$ pint of lubricating oil.

On October 4 it started from the store at 12:30 on the Oak Park route with 130

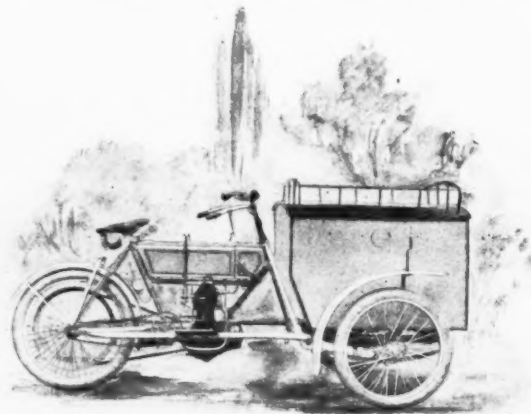
packages. It arrived at Oak Park at 1. The territory covered was Oak Park, Harlem, River Forest, from Twelfth street, to North avenue, on the north, and Austin avenue to the Desplaines river on the west. The delivery was made and the car returned to the store at 6:30. The amount of gasoline consumed was 6 gallons and $\frac{1}{2}$ pint of lubricating oil.

On October 5 the first load left the store at 9:15 with 124 packages, on the northern trip, arriving at Devon and Evanston avenues, the first stop, at 10:15. The territory covered comprised that lying from Lake Michigan to Bennett avenue on the west, and from Devon avenue to Central avenue on the north. The complete delivery of the load was at 1:45. The second load started from the Evanston barn, Chicago avenue and Main street, at 4:20 with thirty-one packages, covering the same territory as the morning route. The delivery was completed at 5:45. The amount of gasoline consumed was 9 gallons, and 1 pint of lubricating oil. Time could have been saved in delivering the second load by the return of the machine to the store instead of the long wait made necessary in sending the parcels for the second load to Evanston by train, to be distributed from the Evanston barn. In all the gasoline used was 22 gallons, costing \$2.31, and the lubricating oil $1\frac{3}{4}$ pints, costing 14 cents, or a total of \$2.45. The total number of packages delivered was 480, and the mileage covered during 3 days' demonstration was 158 miles, at an average speed per hour of $9\frac{1}{2}$ miles, which is considered good going.

NEW REO BUS

The Reo Motor Car Co., of Lansing, Mich., with its usual energy has come to the front with a ten-passenger motor bus. Chassis construction is featured by the use of pressed steel side pieces, curving downward in front, where the spring hangers for the semi-elliptic springs are secured. The rear part of the frame is carried on full elliptic springs, radius rods extending from midway of the side pieces of the frame to the rear axle casing. Tubular axle construction is used and the axles run on roller bearings. The weight of the bus approximates, with canopy top, 1,700 pounds; the wheel base is 90 inches and the tread 55.

The power is supplied from a two-cylinder opposed motor of Reo construction, suspended lengthwise of the frame and with a bore and stroke of $4\frac{3}{4}$ by 6 inches, respectively, rated at 16 horsepower at normal speed. It is the 1906 motor of the Reo touring car. A special adjustable friction clutch serves to connect the gear with the crankshaft. Drive on the high speed is direct, the maximum speeds ranging between 18 and 24 miles per hour. Ignition is by jump spark, with current from either of two sets of dry battery. The gasoline and water supplies are 13 and $3\frac{1}{2}$ gallons, respectively. The bus body is typical in with a central aisle and rear in every sense. The driver, with a couple of passengers, occupies the cross front seat and behind it are two facing side seats, with a central aisle and rear entrance.



GERMAN POSTAL TRICYCLE

COMMERCIAL STEPPING STONES

Better Than Trolley Line—The establishment of a motor bus line is talked of from the center of New Bedford, Mass., to Buttonwood park, one of its leading suburbs. An electric line has often been talked for over the same route, but the people have objected to the laying of the tracks along the streets.

Another Undertaker In—Syracuse, N. Y., undertakers are all lining up with motor propelled ambulances. Undertaker McCarthy uses a gasoline one and now a competitor, William P. Hart, has arranged for the installation of an electric one. Horse ambulances are used by the latter, but the field of the electric is for long runs. The vehicle will cost \$3,000.

Another Railroad in Line—O. J. Collman, general manager of the Kansas Southern & Gulf Railroad, is responsible for the statement that as soon as the construction of the line is completed it will be equipped with gasoline motor cars for passenger service. Because of the high speed of the motor cars it will be possible to make four round trips each day between Blaine and Alma, the former in Pottawatomie and the latter in Wabaunsee county, Kansas.

Wideawake Boniface—The enterprising proprietor of the Marshall house, York Harbor, Me., owns a Knox bus for transferring passengers to and from the railroad depots. The wagon has facing side seats with center aisle and rear entrance. In warm weather a top of the folding variety is used, the sides, front and end being rolled up, but in wet weather, when down, it can be transformed into an enclosed car, with the large tarpaulin windows furnishing sufficient light for the passengers to read with ease on dull days, if they are so inclined. Travelers are much taken with the new line, one well known drummer giving vent to his approbation recently, remarked: "Good-bye Dobbin and welcome motor. The change has not come a minute too soon. Who wants to ride in a slow, shaking horse bus when a smooth-running, speedy automobile is better in every way?" The fares charged by the bus is not more than that with horse vehicles, but the



SCOTS FIND GOOD USE FOR MOTOR WAGONS

greater loads carried, faster time made and longer hours of daily use are the money savers in connection with them.

Is Now Consistent—The Pope Mfg. Co., of Hartford, Conn., in order to be consistent, as all automobile manufacturers should be, has commenced the use of automobiles in transporting goods between railroad depots and the factory. A light electric machine is used for carrying the lighter freight pieces and a big electric truck for the heavy parts.

Glasgow a Devotee—Glasgow, Scotland, not only believes in municipal ownership, but is also a devotee of the motor bus and motor wagon. The city corporation has recently purchased an Arrol-Johnston, 12-horsepower motor tower-wagon for repairing breaks in the overhead trolley wires. The motor is a two-cylinder one, working at 800 revolutions per minute. The gear box carries gears for four forward speeds and a reverse, with final drive by double side chains. The forward speeds range

from 1 to 16 miles per hour. Noticeable features of the machine are roller bearings, phosphor bronze hubs for the road wheels, solid tires, irreversible steering gear, forced feed lubrication, and magneto ignition.

Use Steam Wagon—James B. Clow & Sons, Chicago, Ill., are using a Coultard steam wagon in delivering iron and tile piping from their yards to all parts of the city. The machine has a 30-horsepower motor and is capable of making 10 miles an hour with a heavy load. Two hundred gallons of water capacity is provided and coke furnishes the heat.

Has Regular Time Table—The bi-daily automobile service between the Bellevue-Stratford hotel, Philadelphia, and Atlantic City, N. J., has been started. Regular trips are made from Philadelphia on Tuesdays, Thursdays and Saturdays, leaving the hotel at 2 o'clock. The machines leave the Chalfonte hotel, Atlantic City, at the same hour on Mondays, Wednesdays and Fridays.

Making Demonstration—The Pardee-Ullmann Co., Chicago, distributors for the Packard car, has been making demonstrations with the Packard truck for several stock yard concerns within the last month. Swift & Co. were given a 5-day demonstration and the Anglo-American Packing and Provision Co. a 7-day trial. The truck was used in delivering meat to the companies' branches around the city.

Educates Operators—The London General Omnibus Co., of London, Eng., is wrestling bravely with the driver proposition by having all of its drivers take courses at the Battersea Polytechnic Institute. Relief days are provided each week, when the drivers take several hours off to attend instruction, pay being given for lesson periods. The company deserves praise for its determination to give the motor bus a fair deal by endeavoring to place it under the care of competent operators. The saving in the maintenance bill is being eagerly followed by the directors and already the direction in which the wind blows can be seen by the fewer breakdowns recorded and the diminishing of the number of accidents.



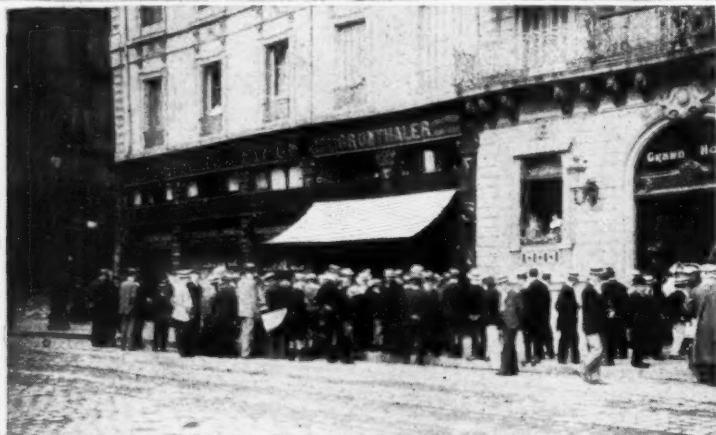
LANDS GUESTS AT THE HOTEL



A MAINE HOTEL BUS LINE

MEETS EACH TRAIN

Motoring Honeymoon Tour of Father and Son



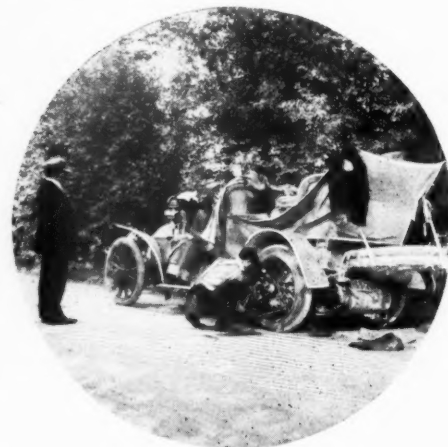
A CROWD WATCHED THE START FROM THE GRAND HOTEL AT LYONS

NO person can conceive of a more delightful wedding trip than that taken during the early summer by New York state's ex-lieutenant governor, Timothy L. Woodruff, and his bride, and his son, John W. Woodruff, and his bride. It is permitted to but few fortunate newly married couples to spend their honeymoon automobiling through France, Switzerland, Austria, Germany and Belgium, as did the Woodruffs, who took this beautiful trip just when everything was at its prettiest and the roads, always smooth, at their smoothest. Mr. Woodruff, while nominally a resident of Brooklyn, has a home in Syracuse, where he is president of the Smith-Premier Typewriter Co. and spends most of his time in that city when he is not mixed up in politics. The trip had been planned a long time before the Woodruffs were married. In fact the car, a Fiat, was especially built for them in Italy and shipped to France, where they met it. Mr. Woodruff had run a Fiat car about New York city and had decided that it was just the machine in

which to make a tour through Europe. He sent his chauffeur, Candido Bastianello, an Italian, over ahead of the party to superintend the preparation of the machine and to get it thoroughly tested out preparatory to having it shipped to Paris. There was not a breakdown during the 27 days of the tour, in which something like 3,000 miles were covered at a good rattling pace. It was not the intention of the tourists to see how fast they could go, but rather to enjoy the beautiful scenery and to gain the rosy health which can only be secured by such a trip. The party would have taken much longer for the journey had not business engagements been pressing. A hot campaign in New York, too, required the presence of Mr. Woodruff. In public life Mr. Woodruff is the boss of Brooklyn, but in private life he is a plain, congenial gentleman. Before starting the story of the trip it might be well to tell how near he came to being president of the United States. He was a candidate for vice president the second

time William McKinley was nominated for president. Owing to the insistence of the republican leaders that Theodore Roosevelt be sidetracked by forcing him to take the nomination, Mr. Woodruff was left out. What happened later is well known. President McKinley was assassinated and the vice president became president. Had not the leaders wanted Roosevelt out of the way, Mr. Woodruff might have been vice president and consequently president. Mr. Woodruff now has his eyes upon the governorship of the Empire state.

Shortly after the weddings, the Woodruffs sailed for England, having made all the preparations in advance for the car and for the details of the tour. Two delightful weeks previous to July 1 were spent in England, where the party was entertained by Sir Thomas Lipton, whose penchant for yacht racing has made his name famous in America. Mr. Woodruff had entertained the noted tea merchant at his lodge in the Adirondacks several times and a strong friendship had sprung up between them. Accordingly, as soon as Sir Thomas found out that the Woodruffs were in England, he made elaborate preparations to entertain them. He took



REPAIRING A PUNCTURE

the party from London to Southampton, where his big yacht, Erin, was anchored and there the party remained for the next 3 nights, the days being spent in touring through southern England in Sir Thomas' 40-horsepower Daimler car. The famous New Forest and other trips in southern England were taken. The party found the roads as good as those traversed later in France, although they were narrower and dangerous on the turns. The weather was delightful and every member of the party thoroughly enjoyed the little side trips from Southampton. Sir Thomas proved to be a royal entertainer.

The Americans started for Paris about July 1 and here they were met by Candido, the chauffeur with the big Fiat car, which developed 43 horsepower. A temporary body had been placed on the car, the manufacturers finding it impossible to get out the finished product in time. It did nicely, however, for the trip and upon the completion of the tour the car was sent back for the permanent body and will be shipped to this country, where Mr. Woodruff will run it in New York. After doing Paris and taking in the points of interest



MOTORISTS SIGHTSEEING IN THE ALPS OF SWITZERLAND

usually visited by tourists, a courier maid was engaged to go ahead with the trunks and to arrange for the hotel accommodations at the various stopping points. The first two days in France were spent in visiting the famous chateaus. One of the most famous of the chateaus visited was the Chateau Chambord, built by Francis I and one of the finest in France. On the way to Lyons the party took in the Bennett race. From Lyons the party went to Geneva and crossed the Alps of Switzerland, going over the highest mountain passes easily. Of this Mr. Woodruff says: "We crossed the Alps at a speed equal to if not in excess of that attained on a level in America, where the roads are a disgrace to our civilization. Too much cannot be said in praise of the European roads. Like a city pavement the roads are before you—smooth as asphalt. We traveled the roads built centuries ago, which are in just as good condition today as when they were first built. The secret is that they are properly maintained. What America must wake up to is to build good roads in the first place and then spend enough money on them to properly maintain them. We noticed with great interest the men whose



SHOVELING SNOW ON THE JUNGFRAU

duty it was to travel over the roads and to fill in the least bit of scratch, keeping them in absolute repair."

Mr. Woodruff, Jr., was the official photographer and succeeded in catching a characteristic snap-shot on the road from Ragas to Innsbruck. No inns being in the vicinity, the party enjoyed a meal in the open air. The two women and T. Woodruff, Sr., were on the ground, and the chauffeur was standing in the background. A strange picture was taken of the women of the party shoveling the snow of the Jungfrau. Mrs. John W. Woodruff wielded the shovel while Mrs. Timothy L. had her hand raised to throw a snowball at the camera artist. The sun was shining hot in the valleys, while on the heights the snow made the party think of winter.

En route from Austria to Berlin the party spent a day at Munich and after 3 days' sightseeing among such interesting places as Nuremberg, Rothenberg, Stuttgart, Baden-Baden, Heidelberg and Dahmsstadt, reached Frankfort-on-the-Main. In Rothenberg the weather was decidedly frosty and the party had to bundle up as if in the dead of winter. Three and four



WOODRUFF PARTY DRESSED FOR A CHILLY RIDE OUT OF ROTHENBERG

overcoats were necessary to keep warm. From Frankfort the party went to Berlin and from there to Cologne, thence to Brussels by the way of Leige.

"The run from Leige to Brussels," says Mr. Woodruff, "was over a Belgian block road. Over there a Belgian block road is a cobblestone road, while here it is really a block pavement. We reached Brussels at 3 o'clock in the morning, the only bad experience we had with either roads or car during the entire trip. Considering the good luck we had on the rest of the tour, it does not become me to say much about that little experience."

From Brussels the party journeyed back to Paris, having been gone 27 days and having covered 3,000 miles without accident. Plenty of tires were carried along and the machine was never seriously delayed on this account. It is interesting to note that during the trip the tires received fourteen punctures. While the tourists made no effort at speed, no car passed

them during the entire trip. They saw many American tourists abroad taking advantage of the good roads and the beautiful scenery. Mr. Woodruff, Sr., since his return home, has been bemoaning his luck in having to cut short his honeymoon in this manner. The 27 days on the road passed all too quickly for the party, and the few discomforts they encountered in the way of tire troubles and cold weather in Rothenberg was more than made up to them by the grand roads they had to travel over and the magnificent scenery upon which they were permitted to feast their eyes. So delighted are the Woodruffs with the joys of automobile touring that it is more than probable that another summer will find them again hiking across the pond for more touring of this sort, or else go west in their own country and investigate the beauties of Yellowstone park and incidentally get a chance to compare the roads of America with the highways of Europe. Anyway, the Woodruffs enjoyed touring.



PICNIC LUNCH ON ROAD FROM PAGAZTO

ROADSIDE TROUBLES

An Ounce of Prevention
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By Chas. E. Duryea



GENERAL HINTS—Axle

Seized—A dry wheel or axle bearing will sometimes begin to cut its metal surfaces and seize so tightly as to prevent turning. The first evidence is lessened speed and apparently lessened power. If the metal particles can get away promptly enough, the bearing simply wears out very rapidly. A stop should be made at once and oil applied, the thinner the better, which will probably stop further cutting. The bearing should be taken apart, all loose particles removed and the rough spots smoothed with a file. If hard spots are found projecting above the surface, they must be cut out with a chisel, if they are too hard for a file, as is sometimes the case. The same procedure applies to any other bearing, of course. Bearings should always be perceptibly loose; tight bearings give trouble.

BACK FIRING—This is of two kinds. Properly it means firing in the tube leading from the carburetor and is usually caused by a sluggish inlet valve, a very defective inlet valve seat, a spark occurring during the suction stroke or ignition during the suction stroke, either from some red hot part or from the exhaust of another cylinder through an open exhaust valve. Find and correct the cause. A premature explosion resulting in a backward kick is usually due to the spark too far advanced and should be called premature firing.

BUZZING OF THE COIL—The coil should buzz only when the spark is wanted, and constant buzzing indicates a short circuit. Its cause should be found at once, for it is an indication that the batteries are being damaged. If the coil does not buzz it indicates no current, either because of weak battery or broken wiring.

BAD BATTERY—Lack of vim is very frequently due to a weak spark and should be taken as an indication that a new battery is needed. Where batteries alone are used, two sets should always be carried and their condition tested by throwing in the other set frequently. After both sets have become weak, they may be used together and will give a considerably lengthened service. Some users carry twelve to sixteen cells at a time, using four at a time when fresh, eight at a time when older, and testing out the worst ones occasionally to be replaced by a set of four fresh cells. The 2½ by 6-inch cell can be found at most telephone stations and because of its great availability is really the best size to use. It is also lower in price and lower in weight, as compared with the service rendered, than the larger cell.

MISSING FIRE—Missing fire is evidence of a weak spark and these mishaps are some-

times evidenced by explosions in the muffler. A faulty connection, a loose wire, a short circuit, a dirty vibrator may be responsible for bad results from a battery. Where but one set is used a few minutes rest will sometimes recuperate them enough to start the vehicle again. A single bad cell in a series will prevent proper action of the remainder and its removal will often permit the remaining cells to do the work. An ammeter is best for testing, although a voltmeter is often used.

BEARINGS—Plain bearings have been treated under the heading of axles. Ball and roller bearings will indicate the presence of some disturbing feature, such as a broken ball, by grinding or squeaking, and if very dry will, sometimes, grind when oil only is needed. About the motor lack of adjustment is usually indicated by pounding and while this is rarely serious when first heard, it should be remedied before it is allowed to become annoying, for constant pounding will, sooner or later, break a shaft or do some similar damage. Plenty of heavy oil will lessen, by filling the spaces, and pound may indicate a lack of oil.

BRAKE TROUBLES—These are usually indicated by failure of the brake to properly hold or by the brake surface seizing and holding too fiercely. In the former event one is liable to run into something through lack of control. In the latter the vehicle may be damaged by the sudden stoppage, to say nothing of the wearing out and destruction of the brake surfaces. Apply, in one instance, common chalk or dry earth to make the surfaces hold better, or adjust the brake, if needed. In the other instance, apply a little oil or graphite. Carefully inspect all operating parts to see that nothing prevents them from having proper movement to operate the brake. Worn or broken parts, of course, must be replaced promptly, for next to the ability to go, is the ability to stop when desired. It is not enough to know that the brake will hold properly in one direction, for it should be known also that it will hold in the other. Severe accidents have occurred through lack of this precaution. Sometimes one end of the band is greasy and the other end dry, which will explain such eccentricity. The grease can frequently be removed by washing with gasoline, but care should be taken that whatever is used does not get into other wearing surfaces, for gasoline, sand and dirt are as detrimental to bearing surfaces as they are advantageous to slipping brakes. It is not advisable to use resin, although this is common practice. Resin, when cold, grips

EDITOR'S NOTE—This is the twelfth of a series of articles by Charles E. Duryea. These articles will be prepared for publication in book form and will be distributed by the American Motor League to its members during the coming year.

fiercely, but as soon as warmed up it serves as a lubricant and is decidedly objectionable. It is also adhesive and a resined band will sometimes stick and refuse to let go, which, of course, stalls the motor and causes trouble. It is particularly objectionable on long hills, for a brake holding well at the top refuses to hold when it gets hot, leaving one a victim of misplaced confidence. Sometimes the brake lining is worn until the metal comes in contact, which, having less friction than the leather or fiber lining, refuses to hold, or the adjustment may be at its limit, so that the band cannot be actuated further in order to do its work. In these cases a new lining is required, but temporary service can be sometimes had by inserting visiting cards or similar filling behind the lining.

BUMPING—A sensation as of running over a small obstacle at frequent intervals, producing a decided bump, is usually evidence of a deflated tire, in which the air tube has crept and formed a knot at the valve tube. If the deflation is not noticed until the bump is felt, as frequently happens, the valve tube is likely to be torn nearly or quite off and the air tube almost sure to be damaged. Of course, there is nothing to do but repair or replace as promptly as possible. Instances have occurred where this irregularity has been felt, caused by a piece of wood with a nail in it, sticking to the tire. A tire shoe blowing out at one point becomes wider and apparently softer and produces much the same feeling when running fast.

NOISES—Under this heading may also come a variety of sounds arising from various causes. Premature ignition, loose bearings, loose distance rods, a small obstacle in sprocket or gears, or a broken, or a loose framework, permitting the engine to jump at intervals. Here, again, inspection is necessary and finding the trouble half the battle. When found, the obstacle can be removed, or the part adjusted. If caused by premature ignition, examine the lubrication, sparking, water circulation and fuel supply. Premature firing will sometimes occur, because of an over-rich mixture, and frequently occurs on hard pulls, like climbing a hill.

BROKEN CHAIN—Extra chain links are easily carried and should be kept in the vehicle. When a block chain is used, it is possible to repair a broken block by wrapping with wire and leaving the chain loose enough to pass over the sprocket. Sometimes a broken side link can also be repaired temporarily with a wrapping of wire, which will enable the user to reach his destination. In the absence of chain rivets a wire nail makes a fair substitute. In a roller chain, a wrapping of wire can replace a roller, but this is seldom necessary.

BROKEN SPRINGS—A broken carriage spring is not uncommon and while the average blacksmith cannot be depended upon for the best of tempering, he can usually weld a broken leaf so as to permit the journey to be continued. To get to the blacksmith shop it will usually be found possible to block up with stove wood, fence boards or anything else available, which permits slow, but safe, driving. Care should be taken after a spring is broken to avoid hard bumps, lest the axle be also damaged.

Current Automobile Patents



LETTERS PATENT No. 800,647, dated October 3; to William A. Hatcher, of Cleveland, O.—The carburetor known as the Brew-Hatcher has a ball-valve controlled float chamber at one side with the mixture entering it from the bottom. To the side of this chamber is the mixing chamber with the air inlet passage in the bottom and the fuel pipe from the float chamber extending vertically through the center of the air chamber. Above the air chamber is a mixing chamber, the bottom of the mixing chamber being flap valves which separate it from the air chamber and the top of it formed by the throttle. The feature of the carburetor consists in the flap valves that separate the air and mixing chambers. The construction of these valves resembles the cutting of a pie into four pieces and hinging each piece at the outside, so that the center can be raised easily. In the center, however, is a small circular opening, in which is the needle valve for admitting gasoline with but a small air space surrounding it. As the motor speeds sufficient air cannot enter this opening and the flap valves are raised a little by motor suction and more air admitted. Each flap valve can be weighted to suit the requirements of the motor to which the carburetor is attached.

Letters patent No. 800,915, dated October 3; to Edward R. Hewitt, of New York.—The invention relates to the carrying of a sub frame on the main frame of an automobile. The main frame is suspended on the four springs in the usual manner and the sub frame, on which is carried the motor and transmission, is carried on the side pieces of the main frame at four points, two points on each side piece of the main frame. Two of the points of support are coincident with the center of motion of the sub frame on the main one and the other two points are either to the back or front of these points. The two former points of support are pivotal.

Letters patent No. 801,000, dated October 3; to William Y. Gambee, of New York.—The device is a new form of connecting the steering knuckles of an automobile as well as innovations in the construction of the steering gear. Each knuckle carries a horizontal two-arm lever rigid with it, one arm extending to the front and the other to the rear. Midway between the knuckles on the car axle is pivoted a four-arm lever with arms at right angles to one another. To the forward and rear arms of the four-arm lever are fastened or pivoted the rods connecting the forward and rear ends of the steering knuckle arms and to the ends of the other arms those extending to the right and left, are pivoted rods running from arms of the base of the steering column. The latter arms are furnished with small gears which work on a semi-circular gear for lending support and holding the wheels of the car rigid.

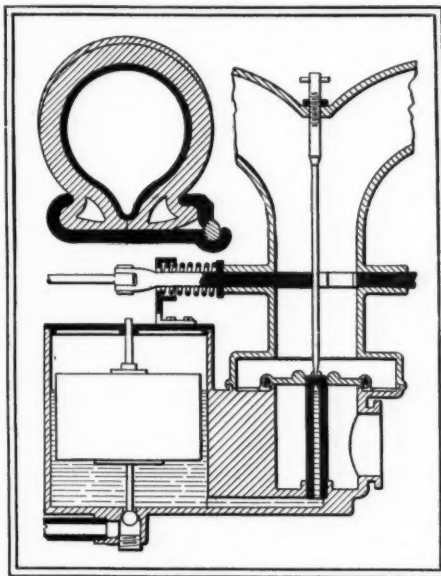
Letters patent No. 800,684, dated October 3; to William E. Schneider, of Washington, D. C.—The inventor has a rotatory gasoline motor. The motor consists of two parts—a stationary casing and a rotating piston within it. In the latter are three tangential thimble-shaped recesses into which explosive mixtures is admitted through a valve system shown at the top of the illustration. At the lower left is shown the sparking apparatus, with recesses in the casing at that point so that when the explosion occurs the force will rest against the recesses in the casing and force the piston on in its revolution. Further around in the casing are six exhaust ports.

Letters patent No. 800,835, dated October 3; to Frank A. Seiberling, of Akron, O.—The invention relates to the method of securing pneumatic tires to the wheels. The wheel rim at one side has a clincher flange and at the other a seating for an endless ring. The tire, on the

side of the endless ring, is retained on the wheel by a right angle flange held in place by the endless ring. In removing the tire the ring is first taken off, a turnbuckle loosening it, then the flange comes off and the tire can be removed.

Letters patent No. 800,864, dated October 3; to Jehu C. Moore, of New York.—The invention relates to an armor tread for pneumatic tires. The tire casing is made with a flat tread, encircling which is a flat metal band. The band is attached to the tire by studs with a large oval top passing through the armor and rubber casing and having on the inner ends a rubber protection for preserving the air tube.

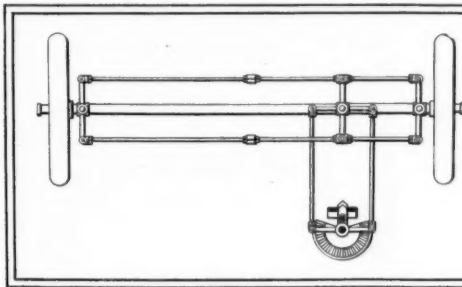
SIEBERLING'S TIRE FASTENER



BREW-HATCHER CARBURETOR

Letters patent No. 800,273, dated September 23; to Orson W. Davis, of Adrian, Mich.—The invention is a friction method of driving an automobile. A vertical motor is placed in front with the crankshaft longitudinally of the chassis. Axially in line with the crankshaft and to the rear of it is a transmission shaft, the front end of which is adjacent to the rear end of the crankshaft. The transmission shaft can, at will, be connected with the crankshaft through a band clutch. On the transmission shaft is a slidable friction wheel, the periphery of which contacts at opposite side with friction disks on cross shafts on the frame. The friction wheel can be moved forward or backward on the transmission shaft, by means of which changes of speed are gained. The drive from the ends of the disk shafts to the rear wheels is through side chains. The friction disks are moved against the periphery

GAMBEE'S STEERING DEVICE



of the friction wheel by bell crank levers secured to the friction disks.

Letters patent No. 800,564, dated September 26; to L. E. Gibson, of Kokomo, Ind.—The invention is a friction clutch of the cone type. The female part is within the flywheel and the male portion is engaged from a sleeve on the transmission shaft through a double set of pivoted levers, one end of the levers being respectively pivoted to the male part and the sleeve and the other ends being pivoted together.

Letters patent No. 800,112, dated September 19; to Joshua W. Jones, of Harrisburg, Pa.—The inventor's tire has a regulation tire casing within which is an inner air tube. Surrounding the tire casing is a wire protection in spiral form with the spiral holding the tire and is in turn held to the wheel by cross bolts from the lower side of it. The wheel rim has no clincher grooves, but rather the part carrying the tire is a semi-circular groove.

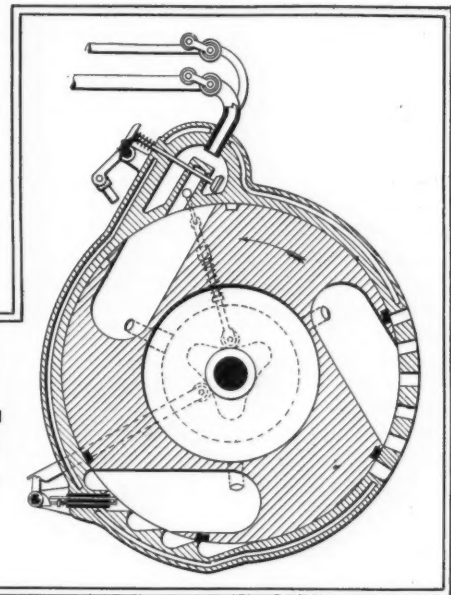
Letters patent No. 800,128, dated September 16, to William Gardiner, of Chicago.—The battery electrode of the inventor is made of relatively pure lead and consists of a plate suspended vertically with the connection at the top. The metal in the plate is folded with folds about 1 inch long and in the metal are transverse holes.

Letters patent No. 795,698, dated July 25; to William B. Hayden of New York.—In his fly wheel for explosive motors the inventor has the hub and spokes in a single casting keyed or otherwise fastened to the crank shaft. The rim of the wheel is two abutting metal rings that are offset to receive the ends of the spoke. The two rings are held together by cross belts. The object of the construction is that rims of different weight may easily be attached to the spokes.

Letters patent No. 801,174, dated October 3; to John Bevington, of Cordova, Neb.—The roller bearing invented by Bevington consists of two circles of rollers, one for each end of the bearings. The rollers are not parallel throughout their length but of larger diameter in the centers than at the ends. In each end is a central rod acting as an axis for the roller, the rod itself working in the bearing in of the hoops slide one over the other.

Letters patent No. 800,784, dated October 3; to Edward C. Bailey, of Cromwell, Conn.—The device is a cushion tire for road wheels of vehicles consisting of an inner hoop which is convex on its inner surface and flat on its outer. The ends of the hoop overlap, being adapted to slide one over the other when the diameter of the hoop is increased or diminished. Surrounding this hoop is an outer one with the inner surface flat and the outer one convex. The two hoops are separated by a series of rubber blocks, the latter being retained in position by the convexity of the hoops and adapted to slide slightly on the hoops when they are compressed and the ends of the hoops slide one over the other.

SCHNEIDER'S ROTARY GASOLINE MOTOR



AUTOMOBILE DEVELOPMENT



ROLLS-ROYCE 20-HORSEPOWER CAR

ENGLAND'S FEATURE CAR

THE feature car of the recent Tourist trophy race on the Isle of Man, England, was the Rolls-Royce, the machine to take second honors, in spite of the features of construction and much talked of superiority of the machine. C. S. Rolls & Co., of London, its manufacturers, did not, however, build a machine specially for the event, but entered a strictly 1906 stock car. The 20-horsepower machine has as its leading mechanical requisites a vertical four-cylinder motor, with cylinders cast in pairs: friction cone clutch, sliding gear transmission, with four forward speeds, the third speed having direct drive and shaft drive to a rear axle of the floating type, the drive shafts of the axle not carrying any of the car weight, serving only to propel the wheels.

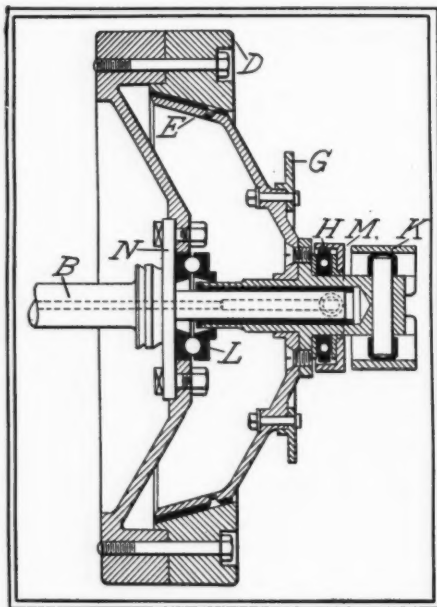
The frame is of pressed steel, tapering from amidships to the spring hangers. There are three cross ties in addition to the end braces, and the rear angles are also tied, not, however, to strengthen the frame so much as to provide a seating for the transverse leaf spring, upon which the rear end of frame rests, instead of, as usual, being hung from the ends of the axle springs. The wheel base is 109½ inches and the tread about 56 inches. The wheels are 35 by 5-inch drivers and 35 by 3½-inch steerers running on ordinary plain bearings of bronze or other desired metals.

The engine is of four cylinders, iron cast in pairs, 100-millimeter bore and 127-millimeter stroke, with a normal speed of 1,000 revolutions per minute, accelerating up to 1,500. The inlet valves, mechanically operated, are placed on top of the cylinders and so provide ports for inspecting the latter when necessary. The crankshaft is a nickel-steel forging running on five phosphor bronze bearings, with ring and splash lubrication. The crank chamber is of aluminum, halved and jointed horizontally, the lower half carrying the couple bearings for the shaft; a large inspection port is provided. The circulating pump runs off the crankshaft at right angles and the half-time gear is enclosed in the fore end of the crank case. Both pump and commutator are driven by skew gears, and the timing of the ignition is varied by

sliding one of the skew gear wheels along its shaft instead of rocking the commutator on its axis. The commutator is divided into two parts, one forming a high tension distributor, and the other a low tension contact breaker. Only one trembler coil is necessary and the lining in each cylinder is synchronized.

The carburetor is of the usual float-feed type with a variation of the customary automatic air inlet. The middle valve is adjustable from the exterior and the whole device is extremely simple and efficient. The engine is governed on the throttle by the usual centrifugal device, and the crank revolutions can be varied by hand control from 150 to 1,500 revolutions per minute, or an equivalent of from 5 to 45 miles per hour on the top speed.

The lubricator shown on the dashboard is of aluminum, containing a pump belt driven off the engine. It maintains a normal pressure of 20 pounds per square inch, which is regulated in its feed by the conical screws attached to the sight feed tubes. The usual hand pump for extra lubrication of the engine is provided. The radiator is in the usual position in front of the



ROLLS-ROYCE CLUTCH

bonnet and consists of the gilled vertical tubes running into end pockets, which have greatly supplanted the prettier but much less satisfactory honeycomb cooler. A belt driven fan behind the radiator helps to cool the engine. The tension of this belt is easily adjustable.

In the gear box practically the only variation from the design set out at the beginning of the present year is noticeable. This is the substitution of four for three forward speeds and the addition of a second sliding unit. The idea was to maintain the usual direct drive on the third, the usual top gear, and to provide a fourth or extra gear for the long downhill sweeps and fast running stretches. The gears were also altered for similar reasons. The standard figures are: First speed, 8 miles per hour, accelerated to 10; second, 16 miles, accelerated to 24; third, 32 miles, accelerated to 48. The car under notice was speeded—9½ miles per hour, accelerated to 14; 22 miles, accelerated to 33; 32½ miles, accelerated to 48, and 45, accelerated to 66 miles per hour. This will go to explain how the high average pace of nearly 34 miles per hour was maintained over the 208 miles in the Tourist race. The ordinary low speed gear is calculated to take a fully laden car up any incline of one in five, or 20 per cent. The usual foot brake is fixed at the rear end of the gear shaft, and acts through the differential gear, while the hand brakes are of the expanding double action type on the driving wheel hubs. The fixed pivots of the levers are at the bottom, and a floating fulcrum at the top ensures equality of brake pressure.

Full engine control is provided on the steering wheel in the center of which are fixed the necessary ignition and Corliss gas lever, working through the hollow steering post, so placed that the driver always has both in reach, no matter at what angle his steering may be set.

The front axle is a solid forging of nickel steel forked at each end, the steering pivots being fitted with ball bearings. The pivoted extension axle upon which the steering wheels run and are borne is bushed so that when worn the bearing can be renewed. The hubs are oil retaining and dirt excluding, end play being taken up by central flanges and washers, which also serve to ensure proper lubrication. The steering is through a case-hardened steel worm working in a phosphor bronze section with adjustable bushes to take up wear, and with ball thrust washers to take up weight of steering column.

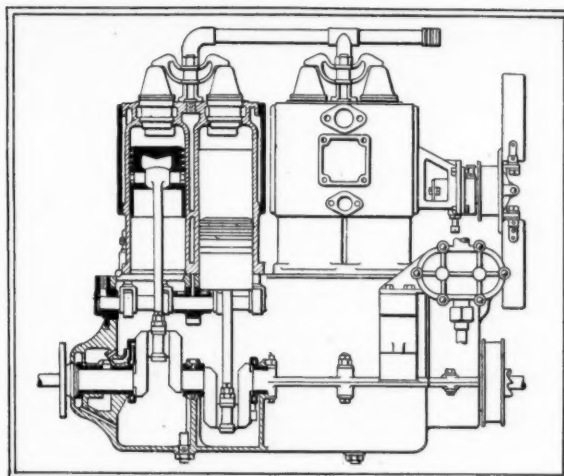
The rear axle, which is of the live type, is designed so that the portion bearing the car load and taking up the traveling stresses is dead, while the transmitting mechanism is under no stresses other than those caused by transmitting the engine power to the road wheels. This is secured by constructing the rear axle of the two lengths of large diameter heavy gauge hardened steel tube, which run into and are flanged and bolted to the usual aluminum casting, which contains the differential and bevel gear. The wheels are then mounted on the steel tube ends by placing two hardened steel sleeves with suitable thrust washers, the wheel hubs being cor-

responding phosphor bronze bushes with large faces to take the end thrust. Inside the axle tubes suitable shafts communicate the power from the differential, each shaft having on its exterior end a jaw clutch which engages with suitable teeth formed in the outer end of the road wheel hub. The bevel gears have ball thrust blocks. Lubricant in bath form is used within the case.

In the clutch, the flywheel of the motor is slightly dished and is bolted to the flange N on the engine shaft B. Aluminum is the material used throughout. To the rim of the flywheel is bolted the ring D, forming the female part and operating within it is the male part E carried on a sleeve and secured thereto by flange and screws. A leather lining separates the male and female parts. The clutch sleeve connects with the drive shaft to the gear case through the universal joint K, secured by a vertical pin to the clutch sleeve. Engagement of the clutch is through the ring M, on either side of which are short arms for connection with the clutch pedal. End thrust is cared for by two sets of ball bearings—one set, L, between the flywheel and the bearing ring on the clutch sleeve, and the other set, H, for absorbing the engagement thrust and carried between the ring M and the flange on the clutch sleeve. A feature of the clutch is the brake disk G, so arranged that when the clutch is moved inwards for disengagement it comes in contact with a brake, which reduces the speed of its rotation and facilitates the changing of the gears in the transmission gear case.

ENGLAND'S VETERAN CAR

The 18-horsepower Siddeley car, which was run through England's Tourist trophy race in the Isle of Man on September 14, was the veteran of the crowd and is an instance of the inclination, at present very apparent among European manufacturers, to return to the engine design of 2 or 3 years ago. This is not so much due to a belief in those earlier patterns as to the conviction that, as prices are falling, the simpler constructed engine and chassis must be reverted to. In addition, these simpler forms of engine have really given greater satisfaction to ordinary users, for the refinements of the past year or two have brought with them risks of failure, often out of proportion to their benefits, or they have not quite justified their cost. The car that does everything for itself is all right as long as it does it, but when it gives up it requires skilled knowledge to put it going again. This Siddeley car is over 3 years old. It was actually the first 18-horsepower car built by the Wolseley company of Birmingham for J. D. Siddeley, and, prior to the latter's 5,000-mile reliability match with Paul Meyan, had been driven upwards of 30,000 miles all over Europe. It is therefore a well-tried article and its behavior against the latest productions of other leading factories was followed with interest. The frame is of pressed steel of taper channel section. There are only three cross-members—one to carry the front part of the engine, one to carry the third support of the gear box, and one tail piece. The frame is stepped inwards 3 inches on



SIDE SECTION ROLLS-ROYCE MOTOR

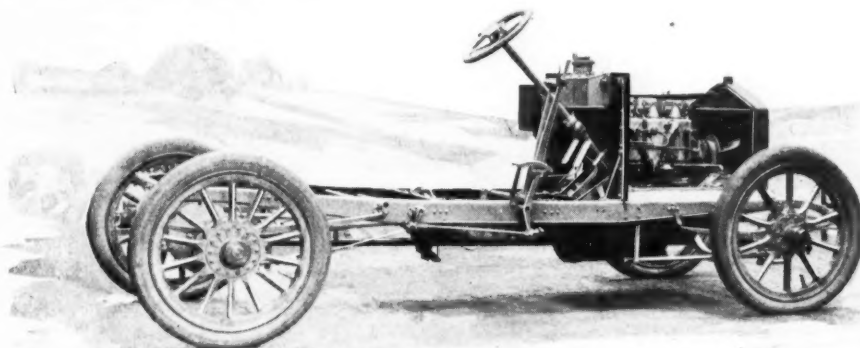
either side of the dashboard to give a wide steering lock. The springs are semi-elliptical, 33 inches long in front and 40 inches behind. Both axles are of I-section forged solid. The front axle is of the jaw-ended type, the weight of the steering pivots being taken on ball bearings. The back axle is of the dropped type, and all wheels run on ball bearings, having four rows of balls in each hub. The four-throw crankshaft is carried on three main bearings and the bottom half of the crank case can be removed without disturbing the crank bearings. The water jackets to the cylinders are aluminum, cast in one piece with the crank chambers. The cylinders are of cast iron accurately ground to size. The cylinder heads are separate from the liners and set on with a ground joint. Both exhaust and inlet valves are mechanically operated, the valve pockets being at the same side of the cylinder, the inlet valve on top. The latter has a variable lift operated by a lever on the steering wheel and constituting the most economical form of throttle control. A bridge carries the rocking levers for this purpose and renders the valves very easy of access. By the removal of the two locking nuts the bridge can come away and the valve boxes lift right out.

Water circulation is by a gear-driven rotary pump through a gilled tube radiator. Automatic governing of engine on the usual throttle valve is adopted; the carbureter is of the ordinary float feed form and the clutch of the cone leather faced type. Three-point suspension for both motor and gear box is adopted, swivel bearings being provided for the frame joints of the differential axle case to avoid twisting stress on the lat-

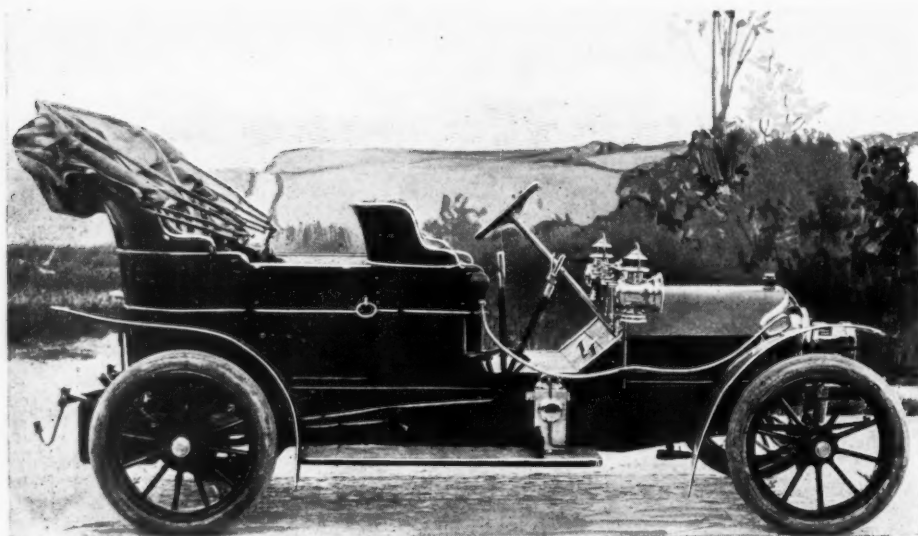
ter. The internal portion of the clutch is mounted freely on an extension of the crankshaft and carries two arms for the propeller shaft between the engine and the gear box. The clutch spring is of the volute type, and is mounted on the crankshaft so that the end thrust is entirely self contained. The differential gear is of the straight-toothed type, which avoids the end thrust of the bevel-gear type. Four forward speed changes are provided, ample size being given to each pinion. The sliding gears are arranged on two sleeves and are operated by means of a drum and toothed section, which makes it impossible to present the gears irregularly. The main bevel gears are in a separate portion of the gear box to the slid-

ing pinions, so that any steel chippings from the latter will not find their way into the bevels, which generally leads to noisy running and short life. The drive from the differential shaft to the road wheels is by side chains 11-16 inch wide and a 1½-inch pitch, running on 33-tooth sprockets on the interior faces of the driving wheels, the interior circumferences of the sprockets forming brake drums. There is no usual countershaft brake. Both foot and hand application are directed to the driving wheel drums. The right-foot pedal operates expanding cast iron shoes inside the brake drums, the shoes being expanded by adjustable toggles equalized for both wheels. The side brake, which runs in the same quadrant as the change speed lever, is pulled back to apply external band brakes on the same drums.

The steering gear is of the Panhard type, irreversible and adjustable for wear. Lubrication is gravity-fed throughout. Each cylinder and crosshead has a separate feed pipe and is independent of the splash, a diaphragm being placed at the top of the crank chamber to prevent oil splashing on the piston. The main bearings are specially fed and the crank pins provided with an oil catcher. The flywheel bearing has a ring catch to prevent oil leaking onto the clutch. The four vertical cylinders are 4 by 4-inch bore and stroke, showing 20 brake horsepower and 1,000 revolutions per minute and accelerating up to 1,800. The speeds provided for are 11, 19, 28 and 37 miles per hour; the wheel base is 7 feet 10 inches, with 4-foot 3-inch gauge. The wheels are 34 inches and the approximate weight of the chassis is 1,792 pounds. Bodies of all modern designs are fitted as per order, the only



ROLLS-ROYCE 20-HORSEPOWER CHASSIS



REGENT 18-HORSEPOWER TOURING CAR

restriction being additional price for enclosed types. The car that participated in the Tourist race was in every detail, as the rules required, a stock model, and the body with wide side entrances, heavy upholstery and fine finish conformed in every detail with the machines built for next year's trade.

THE CULVER RUNABOUT

The Culver is the name of a new runabout to be manufactured in Aurora, Ill., by the Practical Automobile Co., a recent \$100,000 corporation. The machine will have a 6-horsepower, two-cylinder, air-cooled motor, with cylinders opposed and placed lengthwise beneath the center of the body. Circular flanges cool the cylinder walls and longitudinal flanges are used on the heads and valve cages. Mounted on a shaft, in line with the motor shaft, is a two-speed and reverse planetary transmission, with a sprocket between this and the flywheel for single chain drive to the center of the rear axle. A feature of the running gear is the use of larger road wheels than usual, and a still further innovation is found in the use of solid rubber tires. One of the incorporators of the concern is a physician who has had much experience with pneumatic tires puncturing, always when a hurried and urgent call had to be responded to, and the concern hopes by the use of larger wheels to partially make up for the loss of resiliency occasioned by dispensing with pneumatics.

PACKARD RATING

Motor Age, in a recent issue, in describing the Packard 1906 touring car, gave the rating of the same at 24 horsepower. The Packard Motor Car Co., of Detroit, Mich., manufacturer of the machine, gives facts relative to the rating of this machine. Model N, the Packard car of the present season, has four cylinders with a measurement of 4 1-16 by 5 1/4 inches, and is rated at 28 horsepower, and the 1906 machine has four cylinders with a bore and stroke of 4 1/2 by 5 1/2 inches, respectively, and is rated at 24 horsepower. The 1906 motor has frequently developed 46 and 47 horsepower on the Packard testing rack, but is nevertheless rated at 24, the reason for which is found in that it gives 24 horse-

power at the motor speeds at which it will be operated 90 per cent of the time, considering that from 20 to 25 miles per hour is about the average speed at which the car will be driven, and at these rates the crankshaft speed is from 600 to 700 revolutions per minute. It has been found on the testing rack that with the motor running at these speeds this amount of horsepower is generated. This method of motor rating is unique with many French makers, the builders of the Panhard machines rating at 24, machines that will show over 40 horsepower on the testing rack. The price of the 1906 Packard will be \$4,000 and not \$3,500, as appeared in the company's advertisement last week.

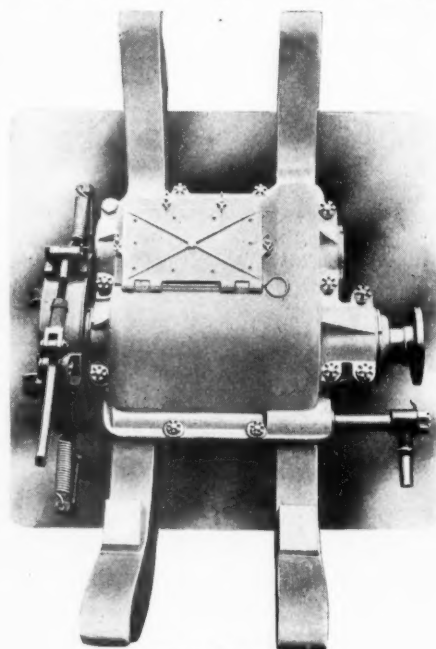
EDGE'S LATEST CAR

Prices of automobiles are dropping in Great Britain and some of the concerns that have previously enjoyed a lucrative trade in high priced cars have been affected so they are now bringing on the market smaller and lower priced machines. These concerns realize that the market for big cars is limited, in many cases, to replacing machines now in use, and that the big market is to be found with buyers looking for smaller machines. Perhaps the most interesting entrant into the small car field is S. F. Edge, Ltd., of Acton, London, which has ready a light car, the Regent, a machine of second grade when compared with the biggest cars now made. The Regent is an 18-horsepower machine, with four vertical cylinders carried beneath the bonnet. The cylinders have a bore and stroke of 3 1/2 by 4 1/4 inches respectively and the rated power is produced with a crank shaft speed of 1,000 revolutions per minute. The mechanical valves are set in the bottom of integral ports on opposite sides of the motor, with two cam shafts required. Low tension ignition is adopted. The crank shaft is a drop forging and runs on plain bearings, all other bearings in the machine being of the ball type. Gasoline is fed to the float-feed carburetor from exhaust pressure and lubrication of the motor is by a positive pump gear driven off the end of the cam shaft. Motor cooling is through a gilled-tube radiator with water circulated by a pump gear driven off the crank shaft. In case of destruction of the

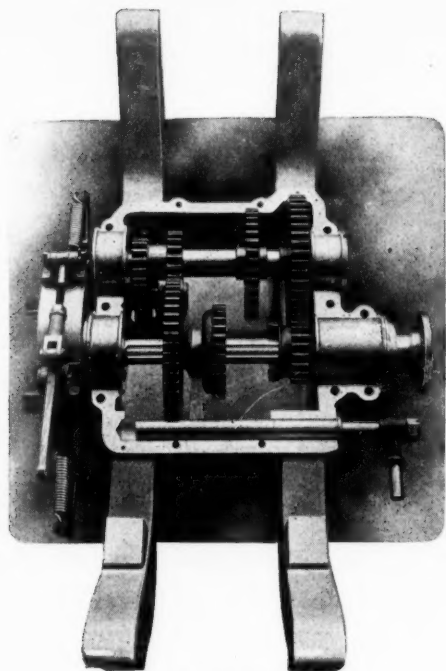
pump the circulating system is so constructed that thermo-syphoning will continue to circulate the water. The clutch is of the internal cone type, leather lined, and is self-contained.

Three forward speeds and a reverse are gained in the gear box. Drive on the high speed is direct, with the counter shaft revolving. The sliding unit, two gears, is on the main shaft, and on the forward sliding gear are dental face teeth for connecting with the master gear on the clutch shaft for direct drive. The gear case is split horizontally in line with the main and counter shaft bearings, the top half being held in place by a dozen bolts, with nuts cotter pinned in place. The oil bath for the gears is provided by supplying lubricant through the inspection opening in the top at regular intervals. On the bottom of the case are four integral arms, one at each corner, for securing the case to the main or subframe of the car. The transmission from the gear box is by propeller shaft to the center of the live rear axle. Two sets of brakes are used—a single friction band one for regular use on the end of the gear shaft in the rear of the transmission box, which is pedal applied, and two emergency internal expanding ones on the rear hubs operated by lever at the right side of the car.

The car body is of rakish lines, partly occasioned by the use of a 114-inch wheel base, with the rear axle practically beneath the back of the body and the front axle, fashioned slightly along Mercedes lines, placed well to the front of the radiator. The rear semi-elliptic springs are swung outside of the sides of the pressed steel frame and the front axle has the usual motor clearance drop. The double side entrances are wide and hinged at the rear. The back of the rear seat is on a level with that of the front one and a short running board, terminating several inches in rear of the front fenders but connecting with the rear ones, are features of the body construction. Spark and throttle levers are on stationary quadrants on the top of the steering wheel. The change



REGENT GEAR BOX



REGENT TRANSMISSION GEAR

speed and emergency brake levers work in quadrants side by side at the right of the footboard. In the footboard are the clutch and regular brake pedals. The wheels are 32 inches in diameter and shod with $3\frac{1}{2}$ -inch tires. The tread is standard and the weight 2,198 pounds.

THE NEW COLUMBIAS

A new 20-horsepower four-cylinder car will be among the Columbia machines. In addition to this the 1906 line cars will consist of a two-cylinder car and a 40-horsepower, four-cylinder car, perpetuating the present models. All will show improvements as the result of another year's experience. The crankshafts, square shafts and all important parts of each model will be of nickel steel. The company's electric line will consist of the new lightweight brougham, which has already been described, and landaulets, hansoms and victorias, mounted on the same chassis as the brougham. The lighter Columbias, including runabouts and victoria-phaetons, will be continued. The company will continue to manufacture electric delivery wagons and trucks of load capacity ranging from 1,000 pounds to 10,000 pounds.

PHILLIPS' DUPLEX MOTOR

Double spark plugs in each cylinder and two throttle valves—one between the carbureter and one cylinder, and the other relatively placed with reference to the other cylinder and the carbureter, are the leading features of a new design of double opposed, water-cooled, automobile motor, made by W. L. Philips, 405 Tacoma building, Chicago, Ill. The motor is made to hang beneath the bonnet of a car, the cylinders hanging crosswise of the chassis frame. The rated power of 12 is generated with a crankshaft speed of 1,125 revolutions per minute, at which rate the pistons travel 750 feet per minute. The bore and stroke are $4\frac{1}{2}$ by 4 inches, respectively. The crank case is split horizontally in line with the crank shaft bearings, the two halves held together by op-

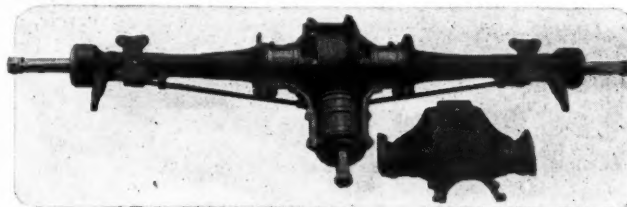
posing flanges and bolts. In the top half is an upper part for containing the cam shaft, cams and ends of push rods, and the top of this part is a square inspection cap, which, when removed, allows the mechanism within the crank case to be examined. Each cylinder is an integral casting with the valve ports on the upper side of the cylinder heads and with the mixture entering the front ends of the ports and the exhaust leaving from the rear ends. The cylinders have lugs for bolting to the vehicle frame. Both cylinders are water jacketed, a space of $\frac{3}{4}$ inch being left for circulation of the water. The inner ends of the cylinders and the flanges thereon are machined so as to fit tightly with the openings in the crank case, and are retained by screws through the flanges into like flanges on the crank case.

The crankshaft, a drop forging, has a diameter of $1\frac{1}{2}$ inches and has the cranks mounted at 180 degrees. It revolves on two bearings: the forward one $2\frac{1}{2}$ inches long and the one adjacent to the flywheel being 3 inches. Each crank pin is $2\frac{1}{4}$ inches in length and of the same diameter as the crank shaft. The wrist pin bearing are 1 inch in diameter and $2\frac{1}{4}$ inches long. The pistons follow standard lines in construction, as do the compression rings they carry, a statement equally applicable to the connecting rods that are made of phosphor bronze and 8 inches in length. The crank bearings are filled with nickel babbitt and bronze bushings are used in the piston ends.

All valves are mechanically operated and interchangeable. They are placed horizontally above the cylinder with the valve stems parallel to the cylinder bore. Each stem is surrounded by an extra heavy coil spring, extending practically the entire length of the stem and held thereto by key and washer. The cams are pinned in place. On the front end of the cam shaft is the large spur gear through which the drive is from the crank shaft. On this gear are the governor weights which are connected up with the two throttles, and on the end of the shaft outside of these

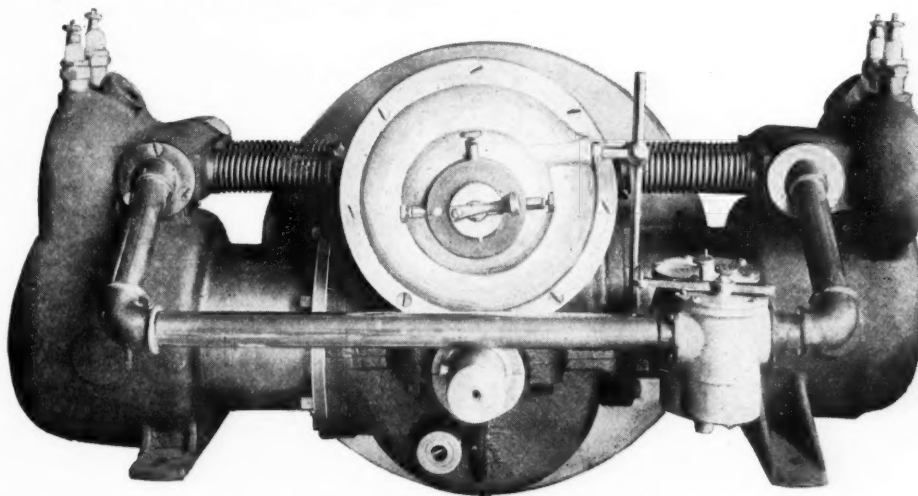
weights is the commutator, pressed in place. The governor weights of the ball variety are secured to a sleeve of the shaft and the sleeve operates through a horizontal arm, which can be seen extending out of the casing and uniting with a similar vertical rod connecting with a cross arm over the top of the mixing chamber of the carbureter. One end of the cross arm is pivoted to the throttle controlling the right cylinder and the other to that for the left cylinder. The throttle can be set in any desired position to the cross arm, but once set the movement of each is the same relative to the movement of the cross arm by the governor. The mixture from the carbureter travels through 1-inch tubing to the valves, the distance to the right one being much less than that to the left. The maker claims to overcome any difference in the quantity of mixture reaching each cylinder by the adjustment of the different throttles to the cross arm. Double spark plugs are placed vertically in the tops of the combustion chambers. The exhaust pipes have a $1\frac{1}{4}$ -inch diameter.

For marketing purposes the maker is

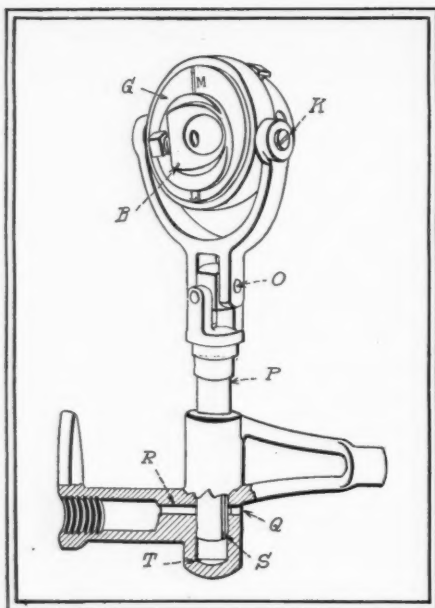


REGENT REAR AXLE CONSTRUCTION

showing the motor connected through a cone clutch with a three-speed and reverse sliding gear transmission, the whole outfit, the motor and transmission being adapted for final shaft drive. The cone clutch is located within the 17-inch flywheel which weighs 102 pounds. The sliding gear transmission is made with four integral lugs for attachment to the ordinary frame constructions. The main and counter shafts are side by side and with the case split horizontally in line with the bearings. On direct drive the forward gear of the pair of sliding gears on the main shaft is locked with the master gear on the rear end of the clutch shaft and on the other two forward speeds the drive is



PHILLIPS' DOUBLE THROTTLE MOTOR



MASON-KIPP OILER ASSEMBLED

to the countershaft and then back to the main one. The reverse idler is on a shaft in the bottom of the case. All gears are face-hardened and are spaced by sleeves to obviate their getting out of position. Phosphor bronze bearings are used on both shafts and the base of the case carries an oil bath. Changes in speed are gained through one lever and the relations of speed to the direct drive are as follows: Low speed, 2-7; second speed 4-7 and reverse 2-7.

NEW MILWAUKEE MOTOR

Another two-cylinder opposed, horizontal motor for automobile uses comes from the Davis Mfg. Co., a Milwaukee hardware specialty concern that has experimented largely on gasoline engine construction. The cylinders with 4½-inch bore and 4-inch stroke are cast with the walls, water jackets, cylinder heads and valve ports made integral. The ports are on the top side of the cylinder heads, the valves being horizontal. The crank case is a spherical casting with the top removed. It is in halves, being split vertically in line with the crank shaft bearings, so that each half carries half of the bearings. The top of the case is a large square inspection cap and when removed the camshaft may be taken out without disturbing the crankshaft or connecting rods. This is accompanied by having the camshaft bearings contained between the walls of the case and the edges of the inspection cap. The crankshaft revolves in a pair of long bronze bearings. The pistons carry three rings and are ground, as are the cylinders. Steel is the material used in the connecting rods, which carry babbitted bronze bearings. The valves are mechanically operated, have a diameter of 1¾ inches and are interchangeable. The push rods carry steel rollers on the ends and work in sleeves 4½ inches long. On the end of the camshaft is carried a simple form of timer, enclosed within a cam-shaped case.

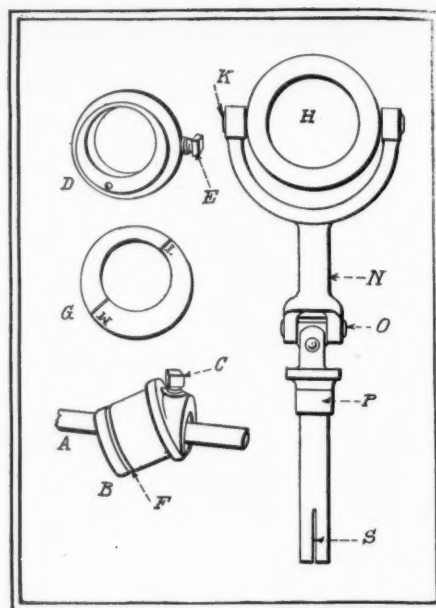
The carbureter is carried close to the crankcase and the pipes leading to the inlet valve branch above a short vertical part. They are flanged on the ends next to the valves and a couple of bolts hold them in

place. The exhaust pipings unite near the lower part of the flywheel. Spark plugs are carried in the top of the valve ports, being placed in an angular position in the outer corners of the port. In the ends of the ports are inspection caps, screwed in place and which can be readily removed when the valves can be drawn out. On the side of the crankcase is a gear driven water pump. The lubrication calls into service a four-plunger oil pump which delivers a positive amount of oil, each bearing having its own pump with separate adjustment.

THE MASON-KIPP OILER

An automatic lubricator for automobiles which will force oil against a pressure of 1,400 pounds and which has no valve in its construction is manufactured by the Mason-Kipp Mfg. Co., of Madison, Wis., and is known as the Mason-Kipp. The oiler is of the single plunger variety, with the plunger moved through the medium of two eccentrics. Its working can be seen by referring to the assembled view in the illustrations. The plunger P is raised and lowered within the casing by the complex eccentric mechanism at the top. In the casing are two openings, one Q, through which oil is drawn from the reservoir, and the other R, diametrically opposite, through which the lubricant is forced to the parts to be oiled. In the side of the plunger P, near its base, is a vertical groove S. On the up stroke of the plunger the groove S is facing the opening Q, so that as a vacuum is created in the space made by the ascent of the plunger the oil is drawn through the opening Q and the groove S, filling the space T. When the plunger is at the top of its stroke an angular eccentric turns the plunger half around, so that the groove on the down stroke faces the exit R, and as it descends the oil is forced out of the space T, up through the groove S and out through the opening R to the parts to be oiled. With every up and down stroke of the plunger this operation is repeated and oil is delivered positively to the bearings.

The unique construction of the oiler is to be found in the eccentric combination at the top of the plunger. The plunger is connected through double jaws and the block O



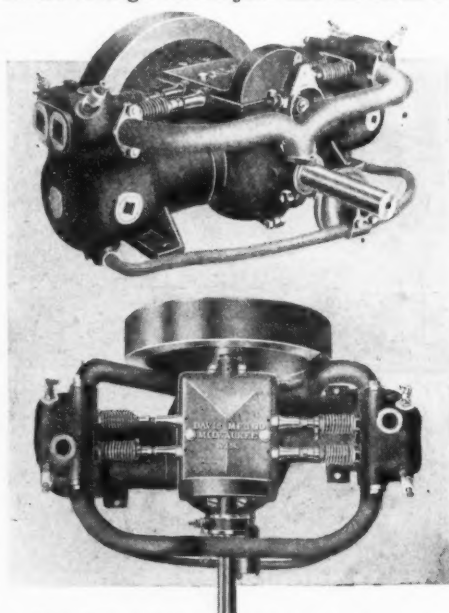
MASON-KIPP OILER DISASSEMBLED

with the forked piece N, which carries the ring H through the trunnions K. There are two eccentrics, one to raise and lower the plunger and a second to rotate the plunger, so that on the up stroke the plunger groove faces the inlet passage and on the down stroke faces the exit port. The shaft A drives the pump and is itself gear driven from the motor or can be one of the motor shafts. On this is placed the barrel-like angular eccentric B, by means of which the rotation of the plunger is accomplished. The eccentric B is held to the shaft A by set screw C. Over B is placed the eccentric D, which has the set screw E for rigidly securing it in place, the inner end of E resting in the circular groove F in the left end of the eccentric B. Over the front part of D is placed the eccentric ring G for adjusting the position of the eccentrics B and D with reference to each other, so that the amount of lift given to the plunger can be varied. The complete eccentric device is then placed within the circle H, and is ready for operation.

The eccentric B is rigid with the shaft A and the eccentric D is in turn rigid with B, except for adjustments. As the shaft A revolves the raising and rotation of the plunger occur. To adjust the length of the plunger stroke the ring G comes into use. On it are the marked halves L and M, so that the amount of adjustment can be known. In adjusting the eccentric D is turned on the eccentric B. For the greatest lift the thick parts of both eccentrics are on the same side of the shaft A; the plunger then has a ¾-inch throw, and when the full parts of the eccentrics are on opposite sides of the shaft the plunger has no throw.

F. H. R. SPARK PLUG

The F. H. R. spark plug, taking its name from the initials of the manufacturer, Francis H. Richards, 15 Murray street, New York city, is an innovation in that the stem of it is made from a single piece of steel, with a thread on the upper end for attaching the wire terminals to. The stem carries on its lower end a circular head made integral with it. Double mica insulation can be looked upon as one of



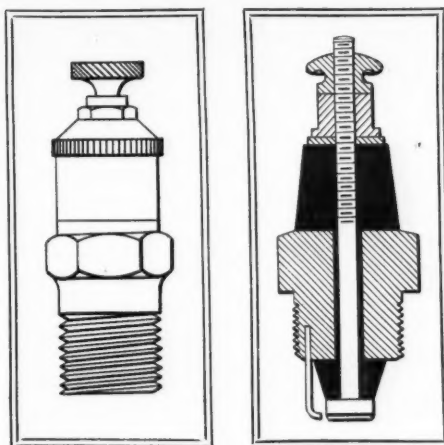
THE DAVIS MOTOR, MADE IN MILWAUKEE

its features. Both above and below the metal part that screws into the cylinder head is a cylindrical mica sleeve, the upper one extending from the top of the metal part to the base of the cap beneath the top screw nut and the lower one separating the body metal from the end of the steel stem. The steel bolt throughout its length, within the metal body, is surrounded by an insulating sleeve. The second electrode is a curved wire within the metal body. It is well imbedded in it. All plugs are tested under high voltage before leaving the factory.

PORTABLE GARAGES

The latest addition to the line of portable automobile houses is one manufactured by the Lloyd Iron Roofing & Paint Co., of Chicago, which is fireproof in that the sides and roof are made from galvanized corrugated steel. These houses are made in sizes from 9 by 10 feet to 12 by 18 feet, with side walls 8 feet high. The advantage of the galvanized steel product is the safety with which the houses can be used in any part of the city, the danger of fire being absolutely eliminated as far as the building itself is concerned. The frame is made from iron and steel, iron piping of large diameter forming the uprights of the frame and the three horizontal pieces are made from angle iron with the angle facing inwards and downwards. Holding the uprights and horizontals together calls into use malleable castings, used wherever these two parts of the frame meet. Supporting the roof are T-iron rafters rigidly secured at the eaves to the top horizontal parts of the frame and similarly fastened at the apex, and midway of the eave and apex are angle iron purlines for assisting in carrying the rafters and also for holding the 24-gauge galvanized 3V-crimp steel which forms the roof. The ridge roll along the apex and the finals at each end of it are made from galvanized metal and attached so that the roof is waterproof. The sides, ends and doors are made from sections of galvanized corrugated steel. Light is supplied through a small window in the gable, and in either side a 2 by 3-foot window. One end is given to double swing doors, which give an opening 8 feet square. The door frame work consists of three horizontal angle pieces braced between the ends by angularly placed pieces, to which the metal is attached. On the doors are iron hasp for padlocks. The foundation is not supplied but can be made from cement, concrete, asphalt, cinders or other inflammable material. The company is also marketing another make of portable house in which the same style of frame work is used but the sides and doors are made from matched and beaded pine. The roof is of steel. This style of house is adaptable for sections outside of the fire area of cities. The size of the wood building is identical with that of the steel, as are the doors, windows and roof.

Buyers residing in cities remote from the seat of manufacture, require little mechanical skill in putting the houses together. The manufacturer delivers the building in parts, framework, roof, walls, doors and windows being properly marked, so that buyers experience slight difficulty in following the instructions.



H. & M. 1906 SPARK PLUGS F. H. R.

In the putting of the parts together bolts are used almost exclusively, so that once together it is always together, and winds, rains and frosts can provoke but slight results. The foundation is furnished by the buyer who must see to it, that whatever kind of purposes using is ready for receiving the building, then with the aid of an average carpenter and an assistant laborer the work can be completed within a day, and the owner finds himself independent of the garages and the annoyance of walking to public stations.

THE H. & M. SPARK PLUG

E. J. Willis & Co., Park place, New York city, are out with a new design of spark plug, to be known as the H. & M. Conspicuous in its construction is the use of a hollow central rod forming one electrode. This rod throughout its length is insulated from the metal body part of the plug. The rod is enlarged at the inner end into a bell-shaped portion in which is held a metal ball. The ball is retained in this expanded part by a circular ring pressed into a circular groove in the inside of the metal plug, one end of the ring being bent radially across beneath the metal ball, retaining it in position and forming the other electrode. When the motor is not vibrating the ball rests on the cross part of the ring and is not in contact with the bell-shaped end of the central electrode. At times the spark passes between the bell part and the top of the ball, and at periods of vibration, when the ball does not rest on the cross part of the ring, it passes between the bottom of the ball and cross part of the ring. The company claims that at all times there is

sufficient space between the ball and either the bell-shaped part or the cross part of the ring to give a good spark. The vibration of the ball keeps all dirt off the electrodes, thereby preventing sooting up. The hollow central electrode admits air during the suction stroke of the motor, the air aiding in cooling the cylinder head as well as helping in keeping the plug electrodes clean.

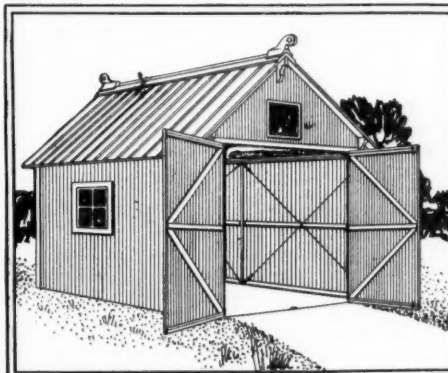
MOTOR CAR LITERATURE

The Reeves Pulley Co., of Columbus, Ind., illustrates its four-cylinder air-cooled automobile motor in a ten-page booklet, in which is a description of the motor, as well as line drawings of several of the leading constructions used.

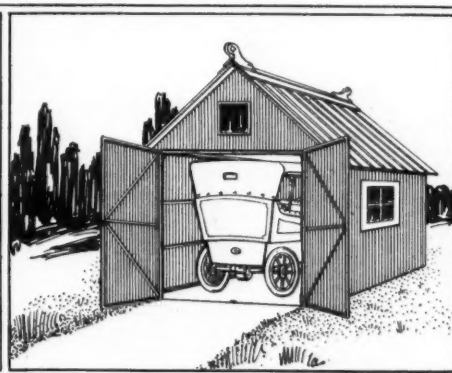
The Auto Girl and the Seasons is the name of a natty little book now circulated by W. B. Riley & Co., Philadelphia, in the interest of the Riley laprobes for use in automobiles. The romance of the automobile robe in wet, dry, windy and dusty weather is given in verse, and each page is suitably illustrated. The book is accompanied by another, having on alternate pages illustrations showing the exact size of texture used in the robes and the colors in each.

Type X, the new 20-horsepower Pope-Toledo car for next year is shown in a neat twenty-page catalogue. The front and back covers comprise one scene, of woodland nature, showing the car approaching along a wooded road on the front, and departing along a similar one on the rear page. Each page of the book is filled with a landscape scene containing the car and a small square of reading matter thrown in the corner. In addition to details and illustrations of the machine a list of Pope agencies is given. The printing is in green and the car illustrations in black.

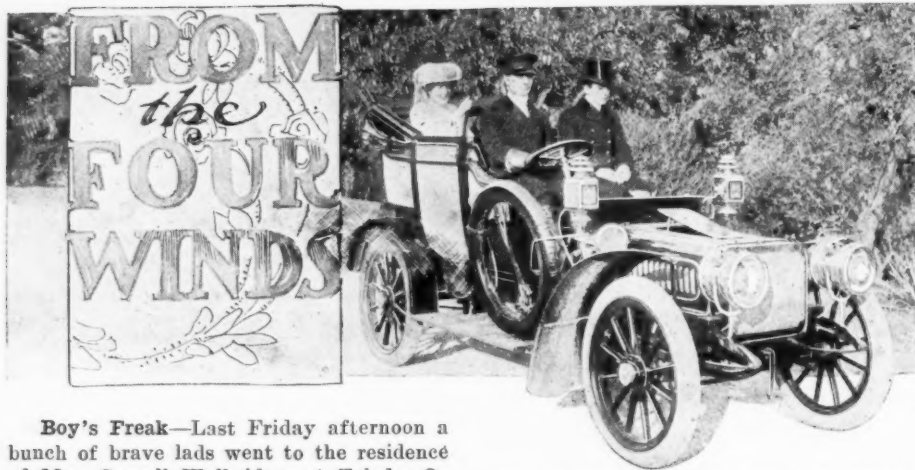
Plain Gas Engine Sense is a new book on the gasoline engine, by E. L. Osborne, and published by the Gas Power Publishing Co., of St. Joseph, Mich. The book contains 123 pages, divided into twenty-two chapters, dealing with such parts of the engine as: different cycles, fuels used, compression, ignition, wiring, power and heat losses, cooling, governing, timing of valves, regrinding valves, lubrication, brake tests, packings, different designs and troubles. Upwards of a dozen line drawings are used in explaining the wiring and other parts of the motor and as many half-tones illustrating other motor parts. The book is published in pocket size, and bound with double covers in tan-colored cloth.



WOOD AUTOMOBILE GARAGE



STEEL AUTOMOBILE GARAGE



Boy's Freak—Last Friday afternoon a bunch of brave lads went to the residence of Mrs. Cornell Walbridge, at Toledo, O., stole quietly away with her automobile and drove it to Erie, Mich., where they abandoned it.

Another Beach Meet—The Atlantic City Automobile Club has scheduled another beach meet over the Ventnor course for October 27. The entries of quite a number of the contestants in the Vanderbilt cup race have been promised the promoters, who are endeavoring to wrest the short-distance honors from the Cape May course.

Will Entertain Visitors—The New York Motor Club will give a house warming at its new club rooms at the Cumberland, on upper Broadway, this week. On Friday it has undertaken to give 100 members of the Chicago Press Club, who are to visit the New York Press Club, a ride through Central park and Riverside drive and down town to the city hall, where a call will be made on Mayor McClellan.

Bisons Ask Why—At its session last week the board of governors of the Automobile Club of Buffalo appointed a committee, consisting of Secretary Lewis, H. A. Meldrum and W. H. Baker, to ask the officials of the American Automobile Association why the Thomas racing car entered by Harry Houpt in the Vanderbilt cup race was not chosen as one car of the American team. The basis for the club's action is that the car was entered as representing the Automobile Club of Buffalo.

Enthusiasm at Milwaukee—Plans for an enlargement of the sphere of usefulness of the Milwaukee Automobile Club are well under way. Sherburn M. Becker, one of Milwaukee's wealthiest young men, a member of the city council and one of the most enthusiastic motorists in the city, has been chosen president. The other officers of the club are: First vice president, Dr. Louis Fuldner; second vice president, F. G. Curtis; secretary, James T. Drought; treasurer, William H. Pipkorn. S. M. Becker, James T. Drought and Dr. Louis Fuldner were chosen as directors for 3 years; W. H. Pipkorn, F. G. Curtis and H. H. Rice for 2 years, and Dr. Lewis Sherman, J. R. Barthelet and C. I. Drake for 1 year. For the winter season a series of meetings is planned, at which papers or lectures on the automobile, its care and management, and similar topics will be given by recognized experts in their various lines. The club starts on its new career with a total membership, after

MRS. LESLIE CARTER IN HER DECAUVILLE

eliminating all dead timber, of 125, all active automobilists and owners of their own machines.

Takes Corner Too Soon—The first arrest in Buffalo of a motorist for turning a corner too sharply was reported last Friday, when A. Judson Wells, a well-known real estate man, was taken into custody by Patrolman Talty.

Fast Climb in Packard—Wayne Davis, of the Philadelphia Packard agency, broke the record up Wilkesbarre mountain last Sunday with three passengers in the 1906 Packard he was trying out. The previous best was 8 minutes 30 seconds. Davis drove his car from the foot of the mountain to the summit in 3 minutes 44 seconds.

Labor Union to Buy Car—The national convention of street railway employees, held in Chicago last week, appropriated \$20,000 to buy ten automobiles to be used by the union to convey passengers wherever there is a street car strike, the profits from the fares to go back into the defense fund, where the \$20,000 was taken from. The union already owns three automobiles, which were used during a strike at Saginaw, Mich.

Novel Use of Car—Members of the board of education of the state of New Jersey assigned to examine candidates for appointment to school superintendships, worked an innovation last week by traveling from county seat to county seat in automobiles. The entire trip cost the state but \$175, of which \$125 was for hiring the machines. The same trip by railroad in former years consumed considerably more time and money.

Doctor's Queer Diagnosis—J. B. John, a well-known young business man of Oakland, Cal., is at death's door and Dr. M. M. Enos, who is attending him, attributes Mr. John's condition entirely to the excessive use of his automobile, which, he claims, has by the jar disturbed the nerves and the circulation of the blood. In speaking of the case Dr. Enos said: "I attribute Mr. John's condition to the reckless and excessive use of his automobile. He was constantly riding about in his machine and he did not pay proper attention to crossing tracks and looking out for holes in the street. His machine was a short runabout and there is more jar to the short than to the long machines. The re-

sult was that he constantly subjected his system to jar and jolt until this condition has arisen."

Quakers' Football Fad—The denizens of Philadelphia's automobile row are trying to eke out the weary between-season hours by indulging in football. A likely team of candidates is having three practices a week, and is trying to induce a similar team of New Yorkers to meet it on the gridiron.

Something Free—The New York and New Jersey Telephone Co., at the instance of A. R. Pardington, its contract manager, who was formerly chairman of the A. A. A. racing board, is distributing free among motorists its fine road map of Long Island, by making application to A. R. Pardington, 81 Willoughby street, Brooklyn.

Fighting Boodlers—The City Party campaigners, who are endeavoring to oust the boodlers from the Philadelphia city hall, are using the big Seeing Philadelphia rubber wagons every night to attain that end. Shortly after dark these big cars, each with a liberal supply of red fire and spellbinders, invade a ward where the machine is particularly strong, and broadsides of unanswerable arguments are hurled into the gang. The innovation is making a decided hit.

Glencoe Removes the Bumps—After winning its point in the court, which ruled that Glencoe would not have to remove its famous bumps which were put in to prevent automobile scorching, the village board has passed an ordinance extending the speed limit from 8 to 15 miles an hour. In notifying the Chicago Automobile Club of this action, Gordon A. Ramsey, president of the village board, claimed the honor for Glencoe of being the first city or town in Illinois to permit such a high speed by automobiles.

Women's Club Formed—A club exclusively for women is the latest thing in San Francisco motoring circles. At a meeting held this week a number of enthusiastic women drivers formed the Women's Automobile Club of California. Those present decided not to allow the men even to participate in the club runs. The following officers were elected: President, Mrs. Alfred J. Marsh; vice-president, Mrs. Fred Linz; secretary and treasurer, Mrs. J. Gabriel. Dues of \$1 per month will be charged all charter members and after the charter is closed an initiation fee of \$2.50 will be exacted, and the dues will be reduced to 50 cents.

Joke on J. D. R., Jr.—An amusing incident has just happened to J. D. Rockefeller, Jr., while touring in Switzerland. A party consisting of Mr. Rockefeller, his wife, two friends and a chauffeur, set out from Chamonix, intending to cross the Alps by the Tête Noire pass. They were unaware, however, that this pass is closed to automobiles and were only enlightened when a gendarme stopped them and refused to allow them to proceed further. As the gendarme refused to allow the car to be driven, eight horses were brought and harnessed to the machine, and in this strange manner the whole party arrived at Hotel Mont Blanc at Martigny. The

American entered heartily into the joke, paid the heavy fine with a smile and treated the gendarmes to a sumptuous dinner.

Boy Builds a Car—Sandusky, O., has a genius in the way of an original automobile builder. Harold, the 12-year-old son of Myron Caswell, of that city, last week surprised a number of citizens by completing a runabout. While it is an odd-looking affair, it shows the mechanical ability of the lad.

Buffalo In Map Business—President A. H. Knoll and Secretary D. H. Lewis, of the Automobile Club of Buffalo, are busily collecting information for the use of members of the club who desire to tour in western New York. Secretary Lewis intends to publish soon a road book which will give detailed information about a large number of runs near Buffalo and will include data about the Chicago-New York automobile route.

For Convict Labor On Roads—Wellington F. Loucks, organizer for the National Good Roads Association, is a good missionary. Already his efforts are productive of results. In Ohio he is succeeding in interesting many residents of that state in the bettering of the highways. At Lima three sessions were held at the Allen county court house. An organization was perfected with D. J. Cable as president, J. G. Roberts as vice president, M. Emmett as secretary and N. McBride as treasurer.

A resolution was adopted which declares for convict labor to be utilized in making repairs and maintaining the roads throughout the state. A similar meeting was also held at Tiffin the latter part of last week.

Soaks Motorists—Complaint is made by motorists who use the Jeffersonville and Utica turnpike in Indiana that George Smith, owner of the road, is exacting too heavy a toll. He is said to be a motor-phobist and to keep cars from using his highways charges 75 cents for driving 6 miles. He would rather they kept off the road, he says, than pay him his fee.

Suicide of Tour Survivor—W. B. Saunders, a well-known motorist and medical book publisher of Philadelphia, and the only representative of the Quaker City in last year's endurance run to St. Louis, committed suicide at Atlantic City last Saturday night. Mr. Saunders was suffering from a nervous disorder and was in charge of a physician and nurse at the time.

Make Light of Lights—The members of the police force of Washington, D. C., have been scored by the superintendent of police for their failure to enforce the regulations which require motorists to carry lights on the rear of their cars. The superintendent sets forth that numerous cars are without lights and there are others so dim that the numbers on the machine cannot be distinguished. The superintendent intimates that he will resort to

radical measures if the motorists do not comply with the regulation.

Lights Blind Motorists—The governors of the Automobile Club of Buffalo have voted to ask the management of the Williamsville trolley line to put shades on the headlights of the Williamsville cars. It is claimed by the motorists that the lights are so strong that they blind motor car drivers and cause accidents.

Mrs. Carter Luxurious—Mrs. Leslie Carter, the actress, is showing New Yorkers just how much style can be put on in an automobile. She uses a new Decauville landaulet going to and from the theater, with a chauffeur in approved livery, as well as a tiger with silk hat and other appropriate togs to jump down and open the door for her.

Bisons Going To Race—Buffalo motoring enthusiasts have engaged a special Pullman to take them to the Vanderbilt cup race. The car will leave Buffalo on a regular Lehigh Valley train on Thursday night, October 12; will arrive in New York on Friday morning and remain there until evening, when it will be switched to Hempstead, L. I. After the race the car will be taken back to New York, where it will lie until Sunday evening. The party will arrive home Monday morning. The Cleveland Automobile Club will also be strongly represented at the race, while there has been a general exodus of westerners to the east to take in the big event.



INTERESTING STORIES PICKED UP IN MOTORDOM



HERE'S a cat story for you," drawled the department store owner at the club. "This happened in town and doesn't take long to tell it. My man was driving me home the other night when Tabby ran out into the street. We scooped her up as prettily as I ever pulled a big fish out of the water with a landing net. But there was a grinding sound, mixed in with a few feline squeals and we came to a stop just as if we had put on the emergency brake. Tangled up in the chain was the finest lot of cat meat you ever saw and it was some time before we could clear our chain."

"My daughter gave a cow a fine ride the other night," said the banker. "It wasn't the usual kind of a ride where your car pushes a bovine along the public highway, but the animal actually occupied a seat. My girl was taking a spin with her chum and the usual male accompaniment. Going into a town they sighted five cows driven by a man and a boy. 'Honk, honk,' went the horn, but the girl was taking no chances, so she came to a dead stop while the road was cleared. Just as she started up one of the cows became curious and calmly walked in front of the machine. The bump followed and Mrs. Cow turned a complete somersault in the air, coming down in the empty seat. She was carried some distance before a stop could be made, then she rolled out of the car at the side, none the worse for her lively experience," and the banker never smiled as he finished.

THEY'RE telling a story in Chicago of a man buying an automobile in place of of an umbrella just to escape going home through the rain. J. W. Kiser is alleged to be the hero of the tale. Mr. Kiser at one time used to be the head of the firm that made Monarch bicycles and since the automobile came in he has been prominent in his devotion to it. He is credited with owning something like seventeen cars, but like a boy with a choice collection of marbles, he is not averse to adding to his stock.

"I saw the whole thing happen in a garage down Michigan avenue," says the man telling the story. "It was raining and raining hard when Mr. Kiser scooted in to get out of the wet. He evidently was in a hurry to get home and paced up and down the store waiting for the rain to let up. While wearing out shoe leather in this manner he noticed a fine looking electric belonging to C. J. Metzger, who runs the place, a car that the dealer used for his own pleasure. 'That looks pretty good to me,' said Mr. Kiser. 'Is it for sale?' 'Everything I've got is for sale, if I get my price,' says Metzger. 'Well,' says the ex-bicycle magnate, 'I don't want to get wet going home and I've got to be getting along, so let me have that car.' So he outs with his check book, makes the paper good for a large bit of coin, steps nonchalantly in the rig, up jumps a chauffeur and Mr. Kiser is taken home, 15 blocks away, dry shod. I guess that's a record hard to beat."

IT takes something more than Jersey justice to feaze a Windy city motorist, as was evidenced last week, when the Hammononton sleuths apprehended Frederick H. Rawson, of Chicago, for traversing the sacred soil of the mosquito state without a Jersey license. When taken before Justice of the Peace Garton, Mr. Rawson explained that although he had written to the secretary of state for a license blank, and had received it, he had, through forgetfulness neglected to observe the other formalities and in consequence had started from Atlantic City without giving the matter a thought.

"I'm sorry," said Justice Garton; "but I'll have to fine you \$50 and costs, Mr. Rawson."

"Very good," calmly replied the latter, stripping a hundred note from a plerchic roll he fished from his pocket, and handing it to the judge. Then from an inside pocket of his coat he produced some excellent cigars and treated all hands, finally inviting the whole crowd across the street to a moisture store, where he stayed long enough to knock a rather big hole in the change from the hundred-spot. Meanwhile the women in his car, which had been left standing at the curb outside the justice's office, had bought several pounds of candies and were treating all the children in the neighborhood. Altogether Rawson seemed to actually enjoy his first run-in with Jersey justice. The Hammonontonians did, at any rate, and voted Rawson a good fellow.



FINISHING CYLINDERS

Toronto, Ont.—Editor MOTOR AGE—Will you explain the difference in the three terms applied to finishing the interiors of cylinders of gasoline engines; grinding, turning and reaming? Which of these three is the best, and what are the merits of one or the other?—N. Jones.

Turning a cylinder means to revolve the cylinder in a lathe and to take a cut with a tool having an axial movement. It is poor practice, as when bolted to the face plate it will probably be out of balance, and the spring of the tool and the cylinder will produce a tapered hole. In boring a cylinder a cutter is inserted in a rotating spindle, the cylinder remaining stationary. This produces a much better piece of work, although there is still the spring of the tool with which to contend. Another fault is the inability to produce cylinders of the same bore. Reaming a cylinder is performed by a spindle, having several cutters inserted in a head attached to it, revolving inside of the cylinder, which is stationary. By this means a very fine cylinder may be produced. Usually two reamers are used, the one for the last cut taking only a few thousandths of an inch out of the bore. The size across the reamer cutters is the size the cylinder is to be bored. The cutters working on both sides of a diameter do not tend to bore elliptical holes. Grinding is performed after the above operations. About 10/1000 inch is left to grind. The cylinder remains stationary and a little high-speed emery wheel is given a rotary motion. The wheel rotates at high speed upon its own axis, and its axis is given a rotary motion, the combined movements bring the wheel in contact with the inside of the cylinder leaving the finest finish possible.

MOTOR MEASUREMENTS

Reading, Pa.—Editor MOTOR AGE—Will you kindly inform me through your Readers' Clearing House the following: What will be the horsepower of a four-cylinder motor with 4½-inch bore by 4¼-inch stroke at 1,000 revolutions; also 4½-inch bore and 5-inch stroke? What should be the diameter and weight of the flywheel on each? How should the inlet and exhaust valves close and open on both and what size should the valves be? How much compression in pounds should each have and how do you register compression with an ordinary steam gauge screwed in spark plug hole? If it would show 80 pounds on gauge turning the engine by hand, would it be counted as 80 pounds compression? How long should the connecting rod be on a four-cylinder engine with 5-inch stroke? What size inlet and exhaust pipe should be used?—SUBSCRIBER.

A four-cylinder motor 4½ by 4¼-inch will develop 24 horsepower at 1,000 revolutions per minute. The 4½ by 5-inch motor at the

same speed will produce 28 horsepower. In either case use a flywheel 18 inches in diameter with a rim weight of 75 pounds. The pressure as registered by a gauge placed in the spark plug hole will be less than the actual compression, due to the slow speed of rotation and to the space occupied by the piping to the gauge. If rotated rapidly the swing of the needle will make it register too much. An indicator should be used. A compression of 90 pounds is fair practice. To get this have the clearance 24 per cent of the total volume. The minimum length for a connecting rod when the cylinder center is not offset with relation to the crankshaft should be two and one-eighth times the stroke and is independent of the bore. For the inlet a pipe 1¾-inch inside diameter is correct. The exhaust would better be 2 inches, although 1¾-inch will do. The valve diameters should be 1.9-1.6 inch and 1¾ inch, respectively, for the inlet and exhaust. These apply to both sizes of motors. Have the exhaust valves open when the piston is distant 12½ per cent from the stroke end and close upon the upper dead center. Open the inlet at this time and continue until 8 per cent distant on the compression stroke.

WASHING AUTOMOBILES

Chicago—Editor MOTOR AGE—I can't keep the polish on the body work of my car. When purchased early this season, it had an eighteen-coat finish, which now is practically gone, leaving nothing but a dead finish. My carriages retain their gloss from season to season, while but a few months are necessary to destroy the finish of the best finished automobile. A friend, who is a local carriage builder, ventured the explanation that it is because the grease and oils from the motor and exhaust, which accumulate on the machine. To remove these soap is required. Most soaps contain more or less alkali. These soaps are invariably used in removing the grease. When applied, the alkali in the soap is attacked by or attacks—I am not sure which—the acid in the varnish, and the gloss is gone. Are there any soaps manufactured at the present time in which alkalis are not used or used so slightly that their attack on the lustre of the car would be considerably decreased? What is an easy method of analyzing soap

to discover if it contains large quantities of alkali? In washing a highly finished automobile body, should the car be exposed to sunlight while the water is being applied? This is a point much discussed by owners of cars in this city, some contending that direct sunlight is necessary while washing, and others holding that the sunlight passing through drops of water on the body burns small spots in the finish and so partially ruins it.—W. T.

Soft soap and preparations for cleaning automobiles usually contain alkali, which attacks varnish. The mud itself has this effect, an account of the nature of the refuse forming the mud, which contains a high percentage of ammonia. Ammonia is an alkali and injurious to varnish. To test a soap for alkali form a suds of the soap. From a drug store get a strip of yellow litmus paper. If the suds are alkaline, this paper will turn red; if the color is retained, the soap is neutral or else acid. There is no great chance of its being acid, so the alkali test is sufficient. The body should be washed and dried with a chamois before exposed to the sunlight.

TOO MUCH AIR

Joliet, Ill.—Editor MOTOR AGE—I have just completed a month's trip in a boat, down the Illinois and Mississippi rivers, and not for an instant did I have trouble with my motor except very early in the morning or during the evening. It is a two-cycle motor, with make-and-break spark and a vaporizer instead of a carbureter. The motor would run at all times but was erratic and would seem to die down and then pick up. I had a magneto and took the pains to put in six dry cells, so am satisfied the spark was good. I am still in the dark as to the cause of the trouble, however.—J. W. B.

The probability is the air inlet was too large for night running. During the day the air, being warm, would mix with a smaller quantity of gasoline vapor than it would at night, when at this time of the year a cold vapor is given off the water. Either a larger feed of gasoline or a decrease in the air supply would have remedied the trouble.

BROKEN CONDENSER

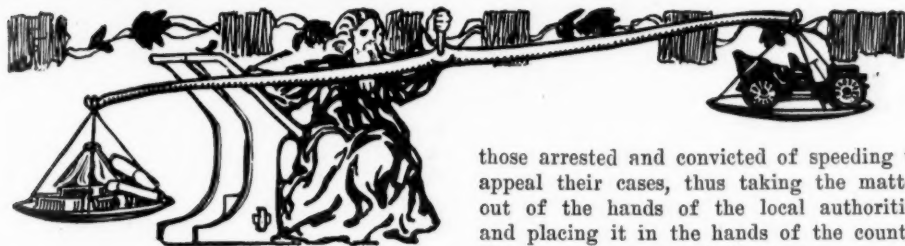
Brooklyn, N. Y.—Editor MOTOR AGE—Kindly let me know how to tell when the condenser of a non-trembler coil is broken down? My coil seems to miss and I cannot lay it to anything else. I have large spark at the contact, which I cannot account for any other way. Does not this signify a broken condenser or coil? I have a de Dion engine. Can this timer be changed for a trembler coil purchased at reasonable expense?—W. R. WICK.

The trouble is probably in the condenser if a large primary spark occurs. Do not attempt to repair the coil yourself, as it will be much cheaper and decidedly more satisfactory to have a coil maker repair the condenser and add the vibrator. Repairs attempted by the owner of a machine, if he is mechanically inclined, and not an electrical expert, often result in worse conditions. Coils require careful workmanship and the condensers, in particular, call for exceptional care. Well repaired by a good workman means always repaired.

ANTI-FREEZING SOLUTION

MOTOR AGE recommends the following as the best anti-freezing solution, all things considered: Use 4½ pounds of pure calcium chloride to a gallon of warm water. Mix and filter before placing in radiator or tank. Replace evaporation with clean water and leakage with solution.

LEGAL LIGHTS AND SIDELIGHTS



NEW LAWS FOR CLEVELAND

Cleveland's chamber of commerce traffic regulation committee, which is framing an automobile ordinance for the city council, will probably present it at the next council meeting. It is announced that, among other things, it will provide for the division of the entire city into automobile controls in order that the speed regulations may be enforced more easily. One control will embrace the entire crowded district surrounding the public square and within this limit speed will be restricted to 4 miles an hour. In the balance of the business district, which will be clearly defined, there will be a limit of 8 miles an hour, while in the residence districts, a speed of 15 miles an hour will be permitted. By clearly defining these districts, there will be no possibility for offenders to escape on the contention that the term "business section" is misleading and not specific as has been done under the state law, which the officials tried to enforce. Another section of the ordinance will deal with the fixing of lights and it will require that every car be equipped with a lamp, which will illuminate the number at night. The numbers must be kept clean and the trick of smearing the number with oil so it will gather dust and become indistinguishable will not work in the future. The ordinance will also embody a clause preventing the owner of a car from allowing it to stand in the streets in one place for more than an hour. There will be a lot of other points which will tend to make the operation of cars in Cleveland more stringent than heretofore.

TO SPIKE COPS' GUNS

The rural constable, the man who lies in wait for his prey, concealing himself in the bushes along the roadside, is now to receive some consideration at the hands of the organized motorists of Massachusetts. The Bay State Automobile Association and the Massachusetts Automobile Club, through their legal representatives, have done heroic work in securing the repeal of certain drastic speed laws in something like eighteen of the towns and hamlets in this state during the past season, and now the legal committee of the Massachusetts State Automobile Association of the A. A. A., which, by the way, is composed of officers of the two above clubs and also of the Worcester Automobile Club, is to go a step further and wage a war of retaliation on the fly farmer cop. There is no question but what these officials have been reaping a harvest off the unwary and, in many cases, innocent motorists, and the latter have been forced to accept their fate in this line. A different tune will, however, be played in the near future, as efforts are to be made to induce

those arrested and convicted of speeding to appeal their cases, thus taking the matter out of the hands of the local authorities and placing it in the hands of the county. When a case is settled in the lower courts one-half of the fine imposed goes to the town and the other half to the county, but where the case is appealed the entire amount of the fine goes to the county and the town loses, likewise the arresting officer who, in the latter case, gets only his witness fees, whereas in the former he generally gets a fair percentage of the amount paid the town. It can, therefore, be readily seen that if the idea of an appeal is generally carried out there will be little to be gained by the fly cops, and that with the fruits of their work going elsewhere they will soon cease their objectionable persecution, for persecution it is, of the motorists. Further than that, the receipts of the several towns will have a great falling off. Another thing which the state association is to attempt during the coming session of the legislature, is to secure the enactment of a law which will give the money secured from fines of automobilists for speeding to the state highway commission, to be used by it in the construction and maintenance of state highways.

SMASHED WRONG CAR

An Illinois farmer has been called upon to settle for damages done to an automobile which he supposed belonged to Pete Weast, of Peoria. The latter's car had whizzed by him a short time before, scaring his team into a hedge fence and breaking the harness. The damage was repaired, Weast apologizing and each proceeded on his way. Then the farmer discovered that one of his horses' feet was cut and the nearer he got to town the angrier he grew, so that when he came upon a new automobile in front of the Danforth house he secured a club and proceeded to knock it into a cocked hat. Then the awful discovery was made that it was not Weast's machine at all, the latter being miles away at the time. The farmer apologized, but that didn't go and he was hauled before Squire Snyder by the irate owner and made to settle for the damage.

NEW GEORGIAN MEASURE

City fathers of Atlanta, Ga., are considering amendments to the automobile ordinance introduced by Mayor Pro Tem. Harwell. The main provisions of the Harwell ordinance are as follows: Creation of board of examiners, consisting of two experts and chief of police, who shall examine all applicants for licenses. Owners of automobiles must give bond of \$500, recoverable by

city for persons injured. All automobiles must carry speedometers. Conviction for violating speed law shall make suspension of license for 30 days discretionary with recorder. Second conviction shall make it discretionary with the recorder to revoke the license. All machines must be numbered, carry lights, visible in front and rear, and shall carry horn or bell or other means of sounding warning. No license to be issued to persons under 18 years of age or to persons lacking in sobriety or discretion. Violations of ordinance subject owner to maximum fine of \$200 or 30 days in stockade, or both, in discretion of the recorder trying the case of law-breaking.

BOASTINGS OF A TRAPPER

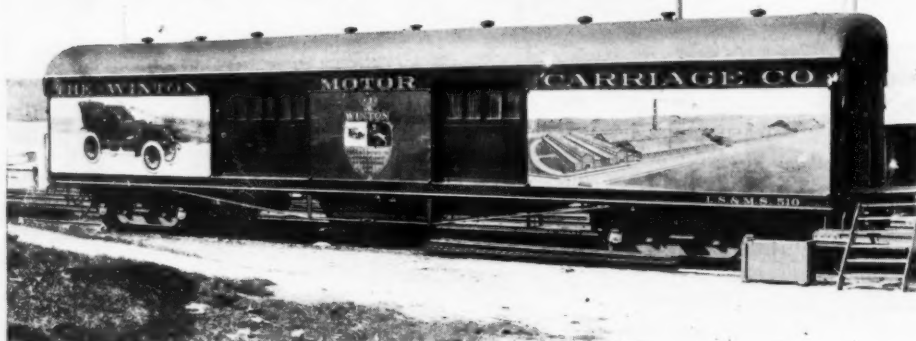
Allan Peabody, the man who is posing as the phenomenal trapper of motorists who exceed the speed limit, has returned to Boston from New York, much inflated with his own importance, and makes the statement that he will shortly descend upon Chicago, and instruct the police of that city in the wonderful workings of what is claimed to be his perfect system of trapping, but which is, in fact, rather a crude system, one which can easily be counteracted. Peabody does not tell of all his experience in New York, including the case in which he failed to make a conviction, owing to a great diversity in his own evidence and the motor police who made the arrest. It seems that one of New York's finest arrested a motorist who passed through one of the Peabody traps and in court the policeman testified that the car was going 25 miles an hour and Peabody testified it was doing 40, according to his watches. The result was an acquittal. Now Peabody is to descend on Chicago. His system differs not materially from the general run of traps. Three stations are located along a certain roadside, each connected with the other by a push button and telephone. When a car is seen approaching the first station a preparatory signal is sent to the next one, and as it crosses an imaginary line the second signal is given and the watch is started. Should the watch indicate an excessive rate of speed as the car crosses the second line the signal to stop and arrest the offender is sent to the third and last station. This, in brief, is the game, and one which cannot be absolutely correct and reliable.

WASHINGTON WORRIES

Automobilists in Washington, D. C., who frequently drive their cars through Virginia, are somewhat worried over the fact that the regulation and possible prohibition of automobiles in Loudon county is being made the subject of numerous petitions circulated for signatures to be presented to the next legislature of Virginia, asking that laws be enacted either prohibiting their operation within the limits of Loudon county or demanding the enactment of a special law placing the matter under the control of the board of supervisors of the county.



Among Makers and Dealers



EXTERIOR OF THE TRAVELING SHOW CAR OF THE WINTON COMPANY

Joins Fisk—Louis Mansuy has joined the Fisk Rubber Co.'s forces as assistant to J. W. Bowman at the New York sales headquarters.

Hinckley in Line—Freeman Hinckley, son-in-law of Colonel Albert A. Pope, will, it is said, be appointed as manager of the Boston branch of the Pope company on the retirement of Mr. Foss.

Claims an Error—J. A. Cramer writes from Buffalo that he has not signed a contract to handle Marion cars for 1906. He will not be ready to announce his plans until the first of the month.

Kelly With Welch—The Welch people have secured a Boston agent in the person of Will R. Kelly, who has secured the establishment on Boylston street, formerly occupied by the Decauville agency.

Moves the Money Man—The auditing department of the Locomobile company has been moved from the New York branch of the factory. Treasurer Thomas M. Thomas accompanies the department.

Quitting Colonel Pope—The latest sensation in the Boston trade is the resignation of W. J. Foss from the management of the Boston branch of the Pope Mfg. Co., with which company Mr. Foss has been closely identified for the past 12 years. Mr. Foss' resignation is to take effect on November 1. At the same time comes the announcement that Archie Hughes, another strong Pope man who has held forth in Providence, R. I., for over a year, is likewise to retire from his position. Foss and Hughes are to go into the business on their own hook in one of the big cities in the east.

Winton Itinerary—The railroad car the Winton Motor Carriage Co. is using to jump around the country displaying the 1906 models was in Philadelphia, Saturday, Sunday and Monday, after having visited Detroit, Buffalo, Rochester, Boston, Providence and New York. At each place the novel idea made a great hit. The rest of the itinerary is as follows: Pittsburgh, October 12 and 13; Columbus, October 14; Cincinnati, October 15 and 16; Indianapolis, October 17; St. Louis, October 18 and 19; Chicago, October 20, 21 and 22; Milwaukee, October 23; St. Paul and Minneapolis, October 24 and 25; Omaha, 26 and 27; Kansas City, October 28 and 29; Den-

ver, October 30 and 31 and November 1. Salt Lake, Sacramento, San Jose, Fresno, San Francisco and Los Angeles will also be visited, the car getting back to Cleveland November 23.

Decauville to Brasier—H. A. Weaver has left the Decauville Automobile Co. to become associated with E. B. Gallaher, of New York, in the importation of the Richard-Brasier cars.

Aster in America—An American branch of the Aster company, of Paris, manufacturer of motors, parts and accessories, has been established at 1591 Broadway, New York. A. T. Myers is the manager.

Closed Boston Deal—The Ranier company has just closed a deal whereby the Morris Tyler Motor Co. has been named as agent in Boston for its product. Mr. Tyler was formerly the Peerless manager in Boston.

To Give Demonstrations—The Gearless Transmission Co., of Glens Falls, N. Y., organized with a capital of \$500,000 to manufacture gearless transmission for automobiles and motor boats, under the Davis patents, is about to start one of its demonstrating cars through the west, visiting the makers and dealers in that section.

Locomobile Changes—A. J. Banta has succeeded B. G. Sykes in charge of the Chicago branch of the Locomobile company. Irving J. Morse takes the place left vacant by the resignation of William Morgan, superintendent of the Philadelphia branch. Mr. Morse was formerly identified with the London branch of the company. Banta's place territory will be taken care of by Kenneth M. Blake.

Testing the Packard 24—The 1906 24-horsepower Packard is being given a thorough test on the road. Early in June it made a run from Detroit to Chicago and return, 600 miles, over rough roads, in a running time of slightly under 22 hours. This performance was repeated a week later by different people and on neither trip were there any repairs or replacements, except to tires. Since then the car has been driven from New York to Boston and return and from New York to Philadelphia and return. Its latest feat, driven by W. R. Densmore, was to do the 76 miles from Powers' hotel, Rochester, N. Y., to Buffalo in 1 hour 57 min-

utes elapsed time, said to be the fastest the route has ever been covered in an automobile.

Holley Pushing Things—Holley Bros. Co., makers of the Holley carburetor, reports that its goods will be used the coming season on Fords, Wintons, Mitchells, Oldsmobiles and Waynes, contracts having been made with the manufacturers of these cars.

Adds Line—The Butler Motor Car Co., of Boston, Mass., agent for the Cleveland and Pierce-Racine cars, has undertaken the agency for eastern Massachusetts for the commercial cars of the Rapid Motor Vehicle Co. of Detroit and Pontiac.

Denial from R. E. Hardy Co.—The R. E. Hardy Co., of New York, maker of ignition plugs and automobile gas engine accessories, wishes to deny statements to the effect that the selling end of its business has been placed in outside hands. It adds that it believes it can best serve its customers through direct relations. The Sta-Rite ignition plugs are made in forty-seven varieties.

Woods Building—Work has started on the new factory of the Woods Motor Vehicle Co., at Twenty-fifth street and Calumet avenue, Chicago. The new building will be five stories and the capacity of the plant will be increased three-fold. It is expected that 500 cars will be turned out in 1906. The move from the old plant at 110 East Twentieth street will be made about April 1.

Kennedy Car Tested—The test given the automobile recently invented by Thomas J. Kennedy, of Cortland, N. Y., is reported to have proved satisfactory and the backers have formed a stock company with \$150,000 to put the machine on the market. The company will probably buy the plant of the Ellis Omnibus and Cab Co. and begin the manufacture of automobiles on a large scale. The experimental machine is finished in green, has two seats and several novel features. There are no cams, oil cups or valves. The car can be run on either one, two or three cylinders. There is but one control lever.

Adds Domestic Car—Though Smith & Mabley were the first of the importers to recognize the value of American workmanship and factory methods as applied to motor car manufacture, it was for the Decauville Automobile Co. to take the initiative in adding a domestic car to its imported line. The enormous increase in its selling, storage and repair plant through the building of the great garage at Broadway and Fifty-fifth street, New York, which will be ready for occupancy by November 15, will enable the officers to carry out long cherished ambitions in the direction of broadening their business. Negotiations with the H. H. Franklin Mfg. Co., of Syracuse, which have been in progress for over a month, were concluded last week by the signing of a contract whereby the company becomes the metropolitan agent of the Franklin. The expressions of both sides at the completion of the deal indicate mutual satisfaction and great hopes for the future. The Decauville company has also arranged to enter largely into the exportation and sale of American and im-

ported sundries. The building now in course of construction will furnish storage for 250 cars. The lower stories, however, have been so built that four more may be added, which will raise the storage capacity to 500.

Studebaker Branch—Studebaker Bros. have leased the Christian Scientist church property, 137-143 West Forty-eighth street, New York city, and will remodel the property for garage purposes. The building has a frontage of 80 feet and a depth of 100 feet.

Has Whole Building—Albert B. Ashforth leased for the Broadway Reliance Realty Co. the entire building on the southeast corner of Broadway and Sixty-fourth street, New York, to the Autocar Co., which will use it for salesrooms, offices and repair department.

Stock Company Now—B. A. Miner, the Hartford, Conn., agent for the Knox and Pierce Arrow motor cars, has organized his concern into a stock company, and H. C. Judd, who owns the land at the northeast corner of Allyn and High streets, will erect a building for him.

Increase Capital—A call has been issued for a meeting of the stockholders of the Crawford Automobile Co. to pass on the matter of increasing the capital stock of the company from \$50,000 to \$100,000. Work is about to begin on the addition to the plant. The new wing will be 100 by 56 feet, three stories, equipped with elevators, offices, etc.

Franklin Output—The H. H. Franklin Mfg. Co., of Syracuse, N. Y., is reported to be planning to turn out from 2,000 to 2,500 cars next year and is hiring all the skilled mechanics it can get, 850 men now being employed. Upon three of the cars the prices have been advanced \$150, \$300 and \$500, respectively. The company is building most of the four-cylinder light touring car type.

Want Repairs, Too—There is quite a movement on foot among automobilists in Pittsburg to secure more satisfactory rates at the garages for storage, etc. At present the rate for dead storage is \$8 per month and for live storage \$30 per month. The motorists believe that this latter charge should include a guarantee for all reasonable repairs, except tires. As the demand for storage is increasing rapidly, it is quite likely that the dealers will accede to this request next year, for, although they claim there is little money to be made in live storage in Pittsburg, they find that it brought them a big lot of sales.

Show Dates—There will be nine big shows this winter—three in this country, one in France and five in England. Two of the American shows will be held the same week—January 13-20—the A. L. A. M. in Madison Square garden, New York, and that of the Automobile Club of America in the armory of the Sixty-ninth regiment, New York. The third one will be the national show of the National Association of Automobile Manufacturers in the Chicago Coliseum the week of February 3-10. The first of the foreign exhibitions will be the Olympia, held in London November 17-25, and the Stanley, which will run opposition during the same week.

The Paris show will be held the week of December 8-24, while the Crystal Palace show in London opens January 26 and runs through to February 3. The other English show—at Agricultural hall—will be held the week of March 24-31.

Erecting Plant—The Western Malleable Steel Co. is erecting a plant at River and Clark streets, Detroit, and will make a specialty of automobile work, for which a special grade of European iron will be imported and treated by a foreign process. The enterprise is backed by Michigan capitalists and is under the management of Harry Gordon.

Incorporated—The business conducted by William Roche at 52-54 Park place has been incorporated and is now owned by the William Roche Dry Battery Co., which has a full paid up capital of \$25,000. The officers of the company are: William Roche, president; Ernest A. Lowe, vice-president; C. Laton Ford, treasurer; William C. Hubbard, secretary.

Ready in Rome—The Long-Turney Co., just incorporated at Rome, N. Y., for the manufacture of automobile radiators, hoods, spiral tubing, brass and copper monograms and other supplies, expects to start operations in 3 weeks. The machinery has been ordered and is on the way. At the start twenty hands will be employed.

Change Site—The Mar-Del Mobile Co., Baltimore, which announced its intention of building a garage on the east side of Cathedral street, has decided to change its site for the structure and has acquired the lot at the southwest corner of Mount Royal avenue and Charles street. Quarters are to be planned on the second floor for the Automobile Club of Baltimore.

Gear Company Prospers—The Syracuse Rawhide Co., manufacturer of gears, at a recent meeting at Syracuse voted to increase its capital stock from \$25,000 to \$100,000. Henry J. Ormsbee has been offered the position of general manager of the company and has the offer under consideration. It is the plan of the concern to install additional machinery and in-

crease its output. The company also has under consideration the erection of a new factory.

They Wonder—Officials of the American Locomotive Co., of Schenectady, N. Y., profess to know nothing of the American Locomotive Automobile Co., which has filed articles of incorporation with a capital stock of \$300,000.

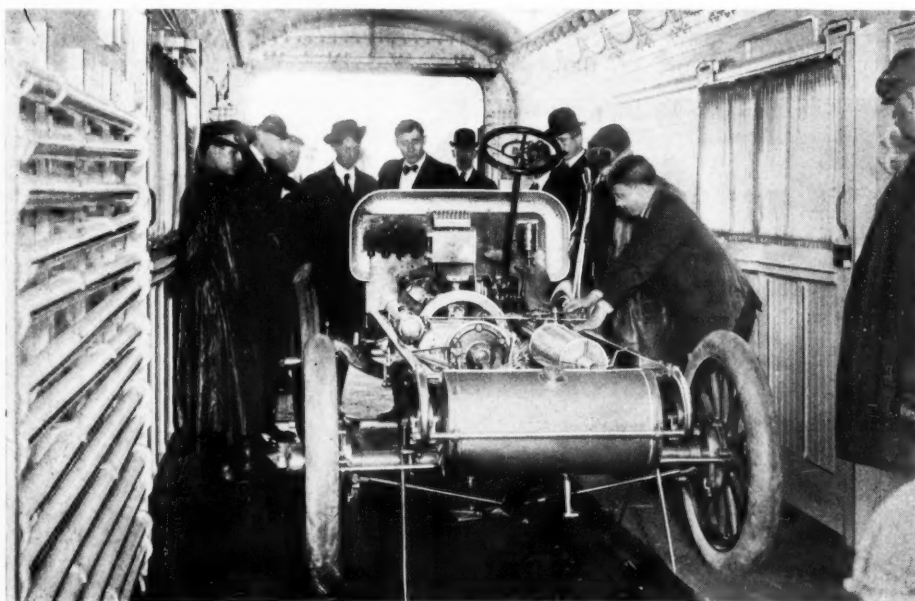
Wants Site—A company, which manufactures gasoline engines, desires to locate in Wauseon, O. The company wants a free site, with the understanding that if the company fails to pay a certain amount of wages for 5 years, then the site will revert back to the city.

Olds New York Agency—For the coming season the Oldsmobile agency in New York will be handled by the Oldsmobile Co., of New York. The agency will be owned by John T. Cutting, who introduced the Cadillac in New York. The salesroom has been located at 1653 Broadway.

New Building—The Detroit Auto Specialty Co., now at 16 Sherman street, has commenced the erection of a large factory at Greenwood and Baltimore avenues, near the plant of the Cadillac Automobile Co. The company employs thirty men now, but when it moves into the new place November 10 it will increase this number to 200.

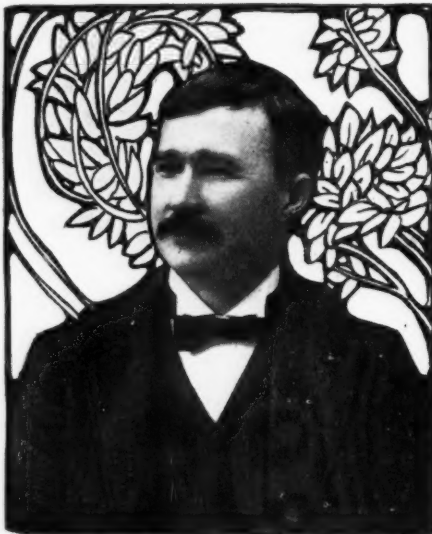
De Dietrich Deal—Baron Adrien de Turekheim and W. M. Letts have just concluded a deal whereby the American agency of the de Dietrich will at once go to Allen Halle & Co., of New York, who formerly imported the Mercedes. The de Dietrich garage on West Forty-eighth street is to be closed and new headquarters opened on Fifth avenue.

Want Makers Bonded—Those farmers down near Mexico, Mo., have held the anti-automobile meeting that was called some time ago. They wanted the automobiles forbidden the use of country roads, but compromised by drafting thirty-six pages of resolutions to the state legislature, recommending, among other things, that the automobile makers be required to give bond for any damages which may result from the use of their products.



INTERIOR VIEW OF THE WINTON SHOW ROOM RAILROAD CAR

PIONEER MAKERS—ELWOOD HAYNES



Frank Nutt driving a 50-horsepower Haynes car into fourth place in the American eliminating trial for the Vanderbilt cup race calls to mind the first run ever made by an automobile constructed by Elwood Haynes. That was in July, 1894, and the machine, claimed to be the first gasoline automobile constructed in the United States, made its debut on the roads running out of Kokomo, Ind., where is located the plant of the Haynes Automobile Co. The car was towed into the country behind a horse-drawn carriage in order to avoid the crowds that immediately assembled on the streets when the rig was taken out of the shop. Once out on the highways, the motor was started by throwing it into clutch with the carriage, and then pushing the latter a short distance. The clutch was then disengaged and the motor continued to run. With the car under headway, three persons mounted into the seat and rode for a distance of about 2 miles further into the country. The car was then stopped, turned around, and started once more for Kokomo, running the entire distance—about 5 miles—carrying two persons without a stop. This demonstration proved that the motor was of insufficient power, especially on the hills, as the total weight of the car was about 820 pounds. The speed on the level was only about 7 or 8 miles an hour. The 1-horsepower motor was soon afterwards replaced by a 2-horsepower motor, and the machine equipped with 36-inch wheels and 2-inch pneumatic tires, which increased its speed to about 12 miles an hour. The best time made was 5 miles in 26 minutes over a country road, which was considered good.

From his boyhood days, Mr. Haynes had

a mind mechanically bent. He was born at Portland, Ind., in October, 1857, his first schooling being secured in the public schools of that place. He early developed a decided taste for the sciences and their application to practical affairs and at the age of 18 he had a fairly good knowledge of elementary chemistry and elementary physics. At the age of 20 he entered the Worcester Polytechnic institute at Worcester, Mass., from which he graduated in 1881.

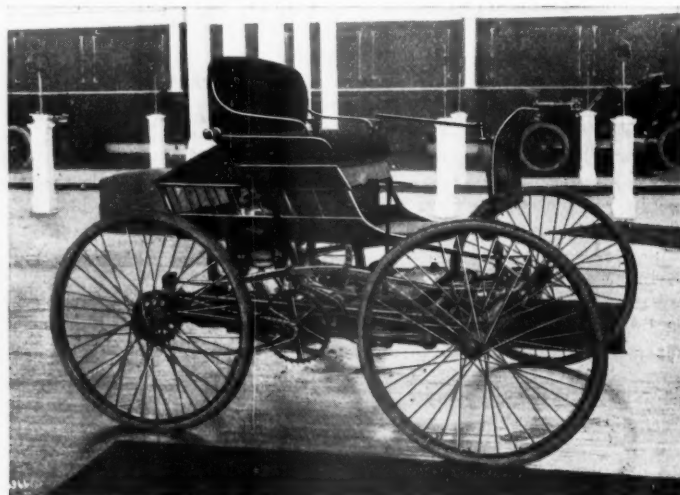
For a number of years after graduating Mr. Haynes was in the natural gas business, and while engaged in this the idea came to him for the first time of building a vehicle which would successfully replace the horse on the highway. In driving from one gas well to another while following his profession, the need of such a vehicle was forcibly impressed upon his mind when he noticed that the long drives tired his horse so that he could only go home slowly in the evening, even though the roads were good. The idea once planted in that fertile brain of his, he turned the scheme over and over in his mind during 1888 and 1889 but it was not until 1893 that he was able to put

his plans into execution and begin the actual construction of a self-moving machine. He considered the feasibility of electricity and rejected it; then he went over the steam proposition with the same result, finally settling on gasoline as being the most feasible basis for power, all things considered. The gasoline motor at that time, however, was a very crude affair and not at all adapted for driving a motor car. The lightest obtainable on the market at that time was a single-cylinder, two-cycle gasoline engine of 1 horsepower built by the Sintz Gas Engine Co., of Grand Rapids, Mich. Mr. Haynes' first idea was to build an extremely light car, weighing not more than 300 or 400 pounds, but after purchasing the motor and noticing its terrific vibration when running, he decided to build a much heavier machine. Materials were difficult to obtain at that time, but after considerable trouble the car was finally assembled. The framework was made of steel tubing brazed into steel castings, which, Mr. Haynes believes, is the first application of steel castings to the construction of the automobile.

The year following the trial of the first car a partnership was formed between Mr. Haynes and Mr. Apperson and continued for about 2 years when a corporation was organized under the name of the Haynes-Apperson Co. September 1 there was another change and now the Haynes car is manufactured by the Haynes Automobile Co., Mr. Haynes still retaining the presidency but turning the general managership over to V. E. Minich in order that he may have more time to devote to the mechanical details of the car made by his company.



THE LAST CAR MR. HAYNES BUILT—1906



THE FIRST CAR MR. HAYNES BUILT—1893

BRIEF BUSINESS ANNOUNCEMENTS

Dayton, O.—Joseph Wysong is sole owner and manager of the Day and Night Auto Co.

Dalton, O.—The Miami Motor Car Co. has added a large office on the second floor of its garage.

Lansing, Mich.—The Motor Car Co., of Detroit, has been incorporated with a capital stock of \$150,000.

Stoughton, Mass.—James Lehan has erected a garage and has the agency for the Pope line of cars.

Two Rivers, Wis.—The Wisconsin Automobile Supply Co. has been recently established here with a capital stock of \$5,000.

Westfield, N. Y.—An automobile factory is endeavoring to secure a location here, good railroad facilities being the chief inducement.

Newton Center, Mass.—H. D. Church has purchased from J. W. Crowell the garage situated at Commonwealth avenue, near Walnut street.

Pontiac, Mich.—F. W. Oliver, of South Bend, has submitted a proposition to the city council to build a factory here to make automobile tires.

Findlay, Ohio.—The Detroit Automobile Co., which was recently organized with a capital stock of \$100,000, is endeavoring to secure a location here.

Sioux City, Ia.—H. Bernard Hallam, formerly of Seattle, Wash., has opened a garage at 616 Fifth street. He will represent the Reo in northwestern Iowa.

Rochester, N. Y.—It is reported that the Covert Motor Vehicle Co.'s plant will be moved here from Lockport. Most of the stockholders are Rochester people.

Newport, R. I.—Thomas G. Owen, expert machinist, has gone into the automobile business, opening a garage at 379 Thomas street. He has taken the agency for the Rambler.

Hartford, Conn.—Two patents have been granted to the Electric Vehicle Co. during the past week, one for automobiles and self-propelled vehicles and parts thereof, and the other for motor boats and parts thereof.

Washington, D. C.—The National Automobile Co. has filed a lawsuit against the Cahill Automobile Co. to recover possession of a Buick touring car, valued at \$1,400, which the plaintiff contends the defendant unlawfully holds.

Pittsburg, Pa.—The American Motor Co., which was recently organized in Pittsburg, is getting ready to build a large three-story brick garage in Diamond street. It will be within a stone's throw of the heart of the office section of the city of Pittsburg.

Milwaukee, Wis.—The Kruger Mfg. Co. has been organized to build automobiles and conduct a general manufacturing and repair business. A four-story building is to be erected by the company at the foot of Biddle street. Julius Kruger is the president of the company and Ross McCoy treasurer.

Coldwater, Mich.—C. R. Johnstone has secured the local agency for the Jackson automobile.

Sea Breeze, Fla.—The Clarendon garage, connected with the Clarendon hotel, will be opened on December 1.

Boston, Mass.—Charles Blaney, late with the Boston Ford agency, has accepted the Boston agency for the Corbin car.

North Attleboro, Mass.—J. P. Ballou is the agent for the Pope cars and manages a complete garage at 175 Washington street.

Jefferson, Ia.—Franklin & Louk have dissolved partnership in the Jefferson garage, leaving Charles Louk as sole owner and proprietor.

Minneapolis, Minn.—Work has started on the new garage of L. H. Fawkes at 111 Sixth street. It will be 50 by 150 feet and is expected to cost \$16,000.

Detroit, Mich.—It is possible that the Union Trust Co., executor of the Alfred E. Brush estate, will build an automobile garage at Woodbridge and Brush streets.

Columbus, O.—Local capital has bought the Springfield Automobile Co., of which C. C. Bramwell is the head, and will move it to this city. Mr. Bramwell will continue as general manager.



RECENT INCORPORATIONS

Omaha, Neb.—The Karbch Automobile & Vehicle Co. has been incorporated with a capital stock of \$75,000. The firm will engage in the manufacture and sale of automobiles and other vehicles.

Albany, N. Y.—The Buffalo Auto Body & Trimming Co., of Buffalo, has been incorporated with a capital stock of \$25,000, to engage in the manufacture of automobile bodies and seats.

Albany, N. Y.—The Esco Mfg. Co., of the Bronx, has been incorporated with a capital stock of \$10,000. The company will engage in the manufacture of motors, vehicles and cycles.

Albany, N. Y.—The Barnes Gear Co., of Oswego, has been incorporated with a capital stock of \$50,000. It will manufacture steering gears and supplies for automobiles.

Boston, Mass.—The Courier Motor Car Co. has been incorporated with a capital stock of \$15,000. The company is to engage in the sale of motor cars.

Augusta, Me.—The Gearless Transmission Co. has been incorporated with a capital stock of \$500,000, to engage in the manufacture of motor vehicles.

Lansing, Mich.—The Matheson Motor Co. has been incorporated and has increased its capital stock from \$600,000 to \$1,100,000.

Columbus, O.—The King Mfg. & Garage Co., of Springfield, has been incorporated with a capital stock of \$20,000.

Albany, N. Y.—The Griswold Mfg. Co. has been incorporated to deal in automobiles. The capital stock is \$25,000.

Albany, N. Y.—The Greene Motor Car Co., of Newark, N. J., has been incorporated with a capital stock of \$100,000.

St. Joseph, Mo.—The St. Joseph Automobile Co. has been incorporated with a capital stock of \$2,000, all paid.

Austin, Tex.—The Waco Auto & Electric Co. has been incorporated with a capital stock of \$5,000.

Los Angeles, Cal.—The Golden State Motor Car Co. has increased its capital stock to \$500,000.

Lawrence, Mass.—A brick garage has been erected by the Broadway Motor Car Co. at 174 Broadway.

Washington, D. C.—E. A. Beekman has filed a lawsuit against the Auto Transit Co. to recover an account of \$325.

Bay City, Mich.—W. F. Flynn, manufacturer of the Falcon motor car, is seeking a location here for a new factory.

Boston, Mass.—The Welch Motor Car Co. is to establish a branch in this city. W. J. Kelly is to assume the management.

Sioux City, Ia.—The Hathaway Automobile Co. reports having sold eighty-eight Cadillacs in and about Sioux City this season.

Madison, Wis.—Among the incorporations is that of the Wisconsin Automobile Co., of Two Rivers, which has a capital stock of \$5,000.

Cincinnati, Ohio.—The Acme Motor Co. has purchased a piece of ground on Sycamore street on which a modern fireproof garage will be erected.

Sioux City, Ia.—William Warnock, on Fourth street, is representing the Rambler, Ford and Olds in northwestern Iowa and northeastern Nebraska.

Philadelphia, Pa.—F. C. Michaelson is to build a garage, two stories high, 23 by 42 feet, on the west side of Fifty-first street, at a cost of \$2,000.

Kenosha, Wis.—The Badger Brass Mfg. Co. is building an addition to its plant, which will practically double the size and capacity of the Solar lamp factory.

Sea Breeze, Fla.—Egan & Grinnell, who have had a successful season with their garage at Narragansett Pier, R. I., will inaugurate the Clarendon Auto Garage here.

Somerville, Mass.—A commodious garage, with a complete repair outfit, has just been opened. It is situated at 15 Glen street and is under the management of H. B. Ruggles and John E. Rogers.

Milford, Mass.—Two garages have been opened here. The Milford Auto Station is under the management of Frank H. Marshall and the Milford Automobile Machine Co. is run by W. Hadley, F. S. Howard and W. H. Baker.

Detroit, Mich.—The City and Suburban Homes Co. sold two factory sites on the northeast corner of Maybury, Grand avenue and the Grand Trunk Railway to the Hayes Mfg. Co., manufacturers of automobile parts, and to the Northway Motor Co. of this city.

Detroit, Mich.—Holly Brothers are erecting an addition to their factories at 672 Beaubien street. The new building is 25 by 90 feet and is to be a brick structure with concrete floors. The company's offices will be located upstairs, while the first floor will be used for experimental work.

WINTON

Economy of Up-Keep vs. Wasteful Working Parts

UP-KEEP expenses are **increased** by the use of Wasteful Working Parts. For instance, the Double Chain Drive.

Cars using the Double Chain Drive have two **exposed** chains and four **exposed** sprocket wheels.

And, since these chains and sprockets are **always exposed**; since they cannot be protected from dust, dirt, grit, mud and rain; and, since being unprotected, they **cannot be lubricated**—except by axle grease that merely picks up dirt and grit and grinds it into the chains and sprockets, thereby **eating them up**; it stands to reason that—

These chains and sprockets **wear fast**,

1. Causing friction, backlash, climbing, binding, jumping and breaking; hence
2. Using up much of the motor power that should be used in driving the road wheels; therefore **wasting money** that you spend for gasoline and oil; and
3. Necessitating the **purchase** of new chains and sprockets—another **bill of expense**.

Also, double chains and quadruple sprockets add greatly to a car's bulk and weight, are unsightly, prevent the use of handsomest body designs and endanger the safety of every woman who gets in and out of the tonneau over the awkward sprocket boxes.

Now, what about the Winton Model K drive?

In this car the engine's power is carried **direct** from motor to driving axle through **one**, single, flexible, carbon steel drive shaft and **two** hardened and ground universal couplings. That means strength, cut-down friction, clean body lines, safety to tonneau passengers and simplicity.

These universal joints are **enclosed** in absolutely tight metal cases that keep dirt, dust, grit, mud and rain **OUT**, and lubricant **IN**. Yes, **IN**, because these cases contain lubricant and, therefore, these joints are **always oiled**. That means friction, wear and noise **PREVENTED**, and the engine's power **USED** in driving the car and not in overcoming friction or resistance.

But—note this. The direct shaft drive **can be ruined** by being subjected to sudden, violent strains. For instance, by the non-oiled clutch, sliding gear transmission system, which, when thrown in, wrenches the drive shaft abnormally.

But there is **no such danger on the Winton**.

The new Winton Model K has an individual clutch transmission. Its clutches run **always in an oil bath**. A film of oil between the clutch cones must be squeezed out before the clutch takes firm hold, and this oil film permits the cones to slip intentionally, just for a second, when the power is applied. That **prevents wrenching**. Then all the engine's power is **directly used** in propelling the road wheels, and, meanwhile, the drive shaft and universal joints have begun to work gradually and have suffered **no strain**.

The individual clutch transmission is the **only** transmission recognized by mechanical science as **legitimate**.

The use of automobile power reaches its maximum efficiency—as you can readily see—when the individual clutch system and the single, direct, flexible shaft are **used in conjunction**.

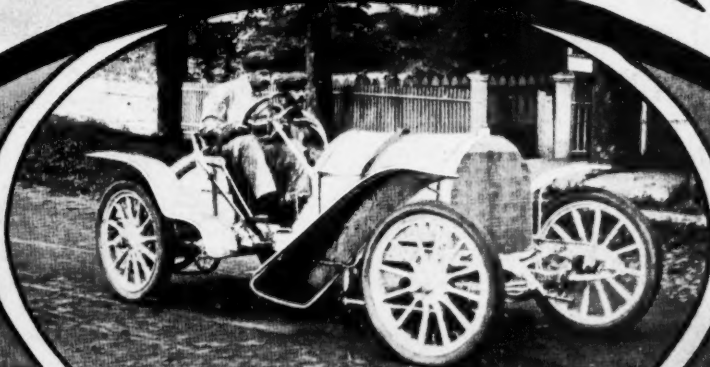
And you get this perfection on the Winton **only**.

There are other ways in which the new Winton Model K cuts down Up-Keep expenses. Let us tell you all about them. Catalog No. 2 is ready.

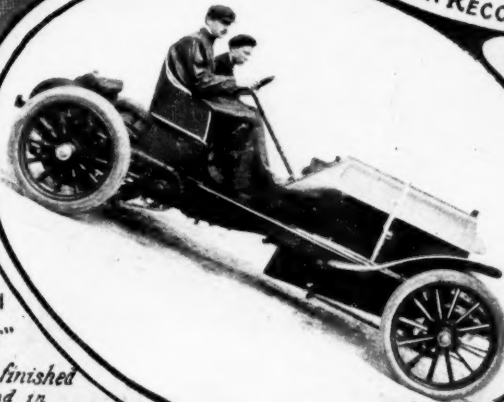
Model K—Four cylinder, vertical, water cooled; 4¾-in. bore; 5-in. stroke. Shaft drive. Individual clutch transmission. Winton Air Governor. Most approved systems of lubrication, ignition and carburization. Seats six. \$2,500, f. o. b. Cleveland.

THE WINTON MOTOR CARRIAGE CO., Member A.L.A.M. **Cleveland, O., U. S. A.**

FIAT



CHEVROLET
IN RECORD BREAKING "FIAT"



NAZARRI
IN
"FIAT"
Which finished
Second in
GORDON BENNETT
RACE



CEDRINO
IN
"FIAT JR."

What better evidence can be given of the superiority of these famous Italian Cars than their record at the Gordon Bennet Race? Not only did they capture second and third places, but Lancia made the two fastest circuits of the way.

FIAT Cars Now Hold FIVE WORLD RECORDS

1. MILE TRACK RECORD (Gasoline)
52½ seconds, made by Chevrolet in Major Miller's "FIAT" at Morris Park.
2. WORLD'S MIDDLE WEIGHT RECORD
55½ seconds, made by E. Parker, at Morris Park, July 4th.
3. WORLD'S LONG DISTANCE ROAD RECORD.
260 miles, made by Lancia at Brescia. Average speed 72½ miles per hour.
4. MOTOR BOAT RACE ACROSS THE MEDITERRANEAN (200 miles)
Won by "FIAT X" in 12 hours, beat nearest competitor 4 hrs. 50 sec.
5. WORLD'S MIDDLE WEIGHT 50 MILE RECORD.
53 minutes, 14½ seconds in "FIAT JR.," (only 24 H. P.) at Long Branch, August 22d.

HOLLANDER & TANGEMAN, 3 and 5 West 45th Street, NEW YORK
Sole American Agents Licensed Importers Under Selden Patents

AUTOMOBILES DE DIETRICH & Co

130 h. p. Racer

Selected to represent France in the W. K. Vanderbilt, Jr.
Cup Race on October 14, 1905



Holds 100-50-1 Mile World's Record

Winner with 40 h. p. regular stock Touring Car of
ten days' endurance—Coupe des Pyrenees
—against 68 other cars

Second in the Florio (Italy) Cup Race

Ear'y Delivery

Demonstrations by Appointment

DE DIETRICH AMERICAN BRANCH: 215-217 W. 48TH ST., NEW YORK

PHONE 974-38

YOU may think that there is more theory than practical value in our claim that the Unit Power Plant and Three Point Support of the STEVENS-DURYEA deliver more power to the wheels per hundred pounds weight of the car, but—think a minute. Our engine isn't as large as the engine in some of these other cars that we beat so easily—we aren't running it at abnormally high speed nor high compression in order to squeeze the utmost power possible out of it—we don't claim over twenty horsepower and we aren't getting over twenty horsepower, yet everyone knows that for its size, the Stevens-Duryea is the fastest car on the road, and is the best hill climber on the market today. If we haven't got as big an engine as the other fellow, how do we produce more RESULTS unless our claim as to DELIVERED horsepower is based on fact?

A little consideration will show you that there must be "Something to it, after all."

J. STEVENS ARMS & TOOL CO.

705 MAIN STREET

CHICOPEE FALLS, MASS.

Member Association Licensed Automobile Manufacturers

WHEN YOU PAY MORE

Model 4B



\$1500

An ideal touring car at an ideal price. 18-20 h. p. (4-cylinder vertical motor), \$1,500. One h. p. for every 85 pounds of weight. No radical features or untried devices for which you will have to pay for the experiments. It embodies the best features of the most famous cars, but it is different in at least one essential—price. A 4-cylinder touring car at \$1,500 seems unusual, you say? It is more than unusual—it's wonderful.

for a touring car or run-about than our price, you are paying for features which you get without extra charge in the

MITCHELL

It is not only "the car you ought to have at the price you ought to pay"

Model 2B



\$750

2 cylinder, 9 h. p., vertical motor, mounted in front. This Runabout is as carefully designed, as up-to-date and smart in appearance as any three or four thousand dollar car ever built. It has ample power for all conditions of road and its hill climbing abilities are unsurpassed. It is all that any man may want in a Runabout.

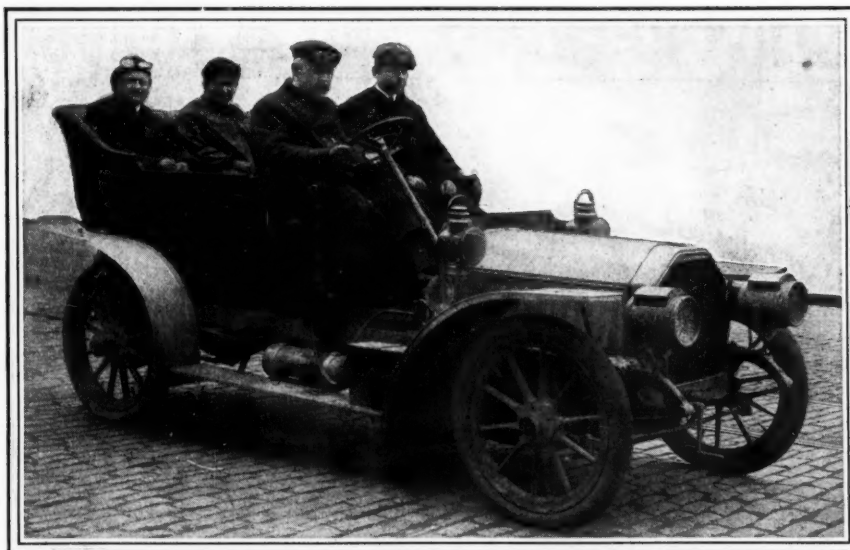
It is **more**. It is absolutely the best car—the most perfectly constructed—the most simple to operate and the most stylish in appearance on the American market. You cannot **possibly** do better than to buy a **Mitchell**.

WRITE FOR CATALOGUE

MITCHELL
Motor Car Co.
RACINE, WISCONSIN

Member American Motor Car
Manufacturers' Association,
Chicago

Peerless



1906 Peerless at the end of the Buffalo trip

The Peerless 1906 Model

is our attempt to make the best car that can be built. Frankly, we are proud of it. The new car has been tested out under the most difficult conditions we could devise. After days and weeks of the hardest kind of tests on the hills and on the level, in which it came out with flying colors in every case, it was sent 400 miles over the road, through the mud. Twenty-eight miles an hour from Cleveland to Buffalo over rough and muddy roads with four people in the car is certainly more than creditable for the first car finished. Especially since it came back to the factory in the same perfect condition that it went out, and that without an adjustment.

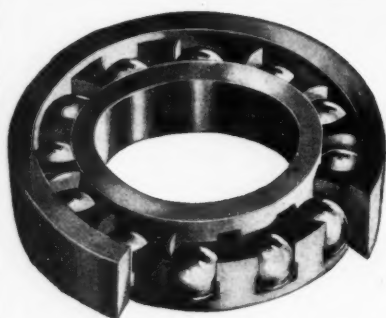
SEND TODAY FOR 1906 INFORMATION

Surely the new model of the same car that holds the stripped touring car record of 58 3-5 seconds and the 1000 mile non-stop record, ought to be thoroughly considered if you are looking for the best car.

THE PEERLESS MOTOR CAR CO.

Lisbon Street, Cleveland, Ohio

Member A. L. A. M.



SILENT TYPE

Standard Roller Bearing Co.

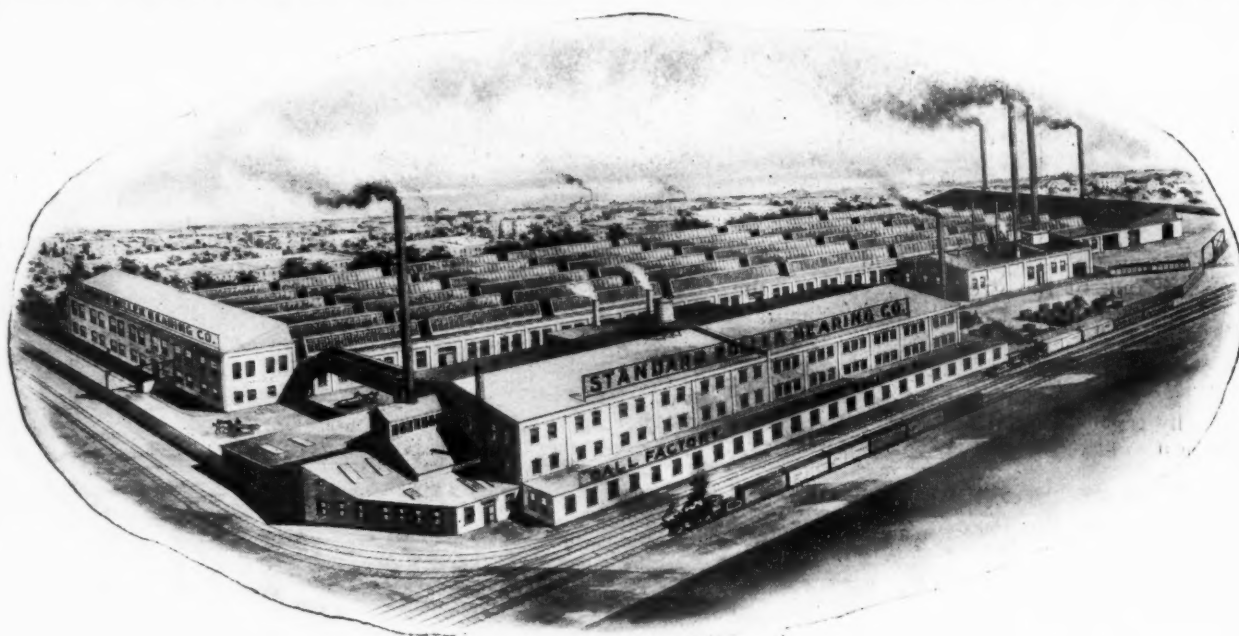
48th and Girard Ave.
Philadelphia, Pa.



CAGE OR SPACER

Largest plant in the world for exclusive manufacture of

ANTI FRICTION BEARINGS AND AUTOMOBILE AXLES



Total space occupied, 145,000 square feet. Main Machine Shop, 150 ft. wide by 500 ft. long. Steel Ball Factory, 70 ft. wide by 300 ft. long, three stories in height. Steel Converting and Tempering Plant, 50 ft. by 110 ft. Power Plant, Engines and Generators, 800 H.P. Steel Ball Output, 2 million balls daily.

WE MAKE ANNULAR BALL BEARINGS



FULL TYPE

We will positively guaran-
tee prompt deliveries

Send for Annular Bearing Catalog

Standard Roller Bearing Co.
Philadelphia, Pa., U. S. A.



FLANGED BEARING
(Either Full or Silent Type)

THOMAS

1906

A Personal Statement from Mr. E. R. Thomas

"Hitch Your Wagon to A Star"

My friends have long known that it has been my cherished ambition to build the best car in the world or, at the very least, one of the greatest.

I do not mean the fleeting reputation gained by enormous outlays for advertising and the performance of road and racing stunts by highly paid employees with special cars or well groomed individuals of social and business prominence always accompanied by factory experts. But I do mean the permanent reputation founded by actual performance in the hands of the general public which comes solely from intrinsic merit.

Years ago—surrounded by noted mechanical talent—we built one of the greatest bicycles of the world, which was better than any foreign continental production. The principles of automobile construction are the same except mechanical power is substituted for human. Since 1897 I have been building vertical gas engines by the thousands. Then why not at least one of the best automobiles?

I knew that with us it was only a question of design, material and time. It was not a question of experience in fine workmanship. We had that. Nor was it a question of profit for that would surely follow.

In 1904 daylight began to appear. Two cylinder vertical motors were the vogue. I went one better and built three at the same price. It was far superior to any two cylinder proposition on this side of the world or the other.

Design was greatly improved, crude and accessory manufacturers improved their material, the car proved highly efficient and the stars we had "hitched to" seemed nearer and brighter. It was in the year that I designed the safety device which has saved lives—also the curved dash with small tool lockers and the chain pull that equalizes the strain on the main bearings. We also used chain oilers on the crank and transmission shafts.

In 1905 we built a four cylinder car which, with nominal advertising, no traveling agents, and no performance of road or racing stunts, requiring special cars and highly paid factory experts, we again caught the public favor and quickly sold four hundred big touring cars—no more and no less. We were compelled to refuse many additional orders, some with bonuses above the price of from \$250 to \$750.

It was in this year I patented the now famous dust proof body and introduced lockers and rails for wraps and many other features of comfort and efficiency.

The result in every way exceeded my most sanguine expectations and the star shone still brighter and was much nearer.

Our success was so great I have about completed a new model fire-proof factory, constructed entirely of concrete, steel reinforced. The mechanical equipment has been greatly increased. The capacity is one thousand fifty horsepower automobiles.

I have the same superb mechanical force who are inspired by the same ambition and who are co-operating with me loyally and energetically to realize our high ideals and which we believe will be fully realized in the 1906 Thomas Flyer, which has been greatly improved in every detail of workmanship, material and design—notably:

Forged I beam axles—great, strong steering knuckles—steering apparatus all forged. No brazed joints. Cross steering rod behind front axle. Large separate motors. Mechanically operated valves opposite sides. Improved radiator fan and pumps. A disc clutch that will not slip under any condition when engaged. Four forward speeds—with one Hyatt roller and five Hess Bright bearings. Altogether fifteen Hess Bright ball bearings, one Hyatt roller and two ordinary ball bearings—twenty-one anti-friction bearings in all. A beautiful new dash and body seating five or eight as desired. Four great big wide brakes—the foot alone will stop a loaded car on a twenty-five per cent down grade.

I am very proud of the New 1906 Thomas Flyer—and I believe the American public will be proud of it. The best foreign cars may have some few unimportant details that we haven't got—and we have some important ones they do not possess. But we have put the design, material, workmanship and money into this car to make it at least equal to the highest priced car in the world, and I believe that the verdict of a just people will, based upon intrinsic merit solely, place the 1906 Thomas among the world's greatest and best, and as such I present it.

E. R. THOMAS,

For The E. R. Thomas Motor Company.

E. R. THOMAS MOTOR COMPANY
 1202 Niagara Street Members A. L. A. M. **BUFFALO, N. Y.**

A SOLAR SERMON



SUPPLEMENT TO "MORNING ILLUSTRATED," SEPTEMBER 2, 1905.
The Fatal Motor-Car Accident to Mr. Henry Winch.



Mr. Henry Winch, the Unionist Candidate for South Norfolk, died at the Crooked Billet Inn, near Basingstoke, on Tuesday, August 29, from injuries received in a motor accident on August 10. Mr. Winch was travelling to Yateley Grange, in Hampshire, and on reaching the curve of the road at which the Crooked Billet Inn stands, he mistook the road and drove straight into the wall of the inn. His skull was fractured and he lay unconscious for over eighteen days. It is stated that the accident, which happened at night, was entirely due to the fact that Mr. Winch would not use acetylene lamps, because he said they frightened horses. The moon was shining on the wall of the inn and looked like a white road. The road itself was in shadow. The photos show the Crooked Billet Inn, the wall where the car struck, and the car after the smash.

Printed by The Acme Type Engraving Co., Ltd., Watford, Herts.

Need we make comment?

WRITE FOR
BOOKLET
OR
ASK YOUR
SUPPLY MAN

BADGER BRASS MFG.CO.
 KENOSHA, WISCONSIN

NEW YORK
OFFICE
11 WARREN
STREET

1906 Stoddard-Dayton

MODELS C AND D

30-35 h. p. Touring Car

15-18 h. p. Runabout

To the Trade—This FORETASTE of the 1906 Model D is issued at this time to advise our friends of the natural developments which come from experience in all parts of this great country of ours, which experience is digested with an eye single to the pleasure and comfort of purchasers of the Stoddard-Dayton.

Dayton, Ohio, U. S. A., October 1, '05.

THE DAYTON MOTOR CAR CO.

MOTOR—The Engine is 4-cylinder vertical, water cooled, 4½ inch bore, 5 inch stroke. Cylinders cast separately and heads integral. Valves mechanically operated. Cam shaft and pump gears entirely enclosed and running in oil. Bearings between each crank. Lower half of crank case removable, leaving bearings intact. Inspection covers in upper half of crank case. Positive and splash lubrication.

TRANSMISSION—Sliding gear. Gears running in oil. Case, oil and dust proof. Three speeds and reverse. Timken roller bearings throughout. Direct drive on high gear. Double universal joint between end of propeller shaft and transmission, and also between transmission and clutch, eliminating all end thrust and strain on the bearings. Cone clutch, large diameter, lined with leather.

LUBRICATION—Mechanical-pressure feed oiler. Each feed can individually be worked by hand in case of emergency. Bearings for wheels, rear axle and propeller shaft packed in grease sufficient for 2,000 miles.

IGNITION—Jump spark, storage batteries, coil on dash. Timer on vertical shaft, hardened steel contacts. Concealed wiring.

CONTROL—Spark and throttle levers situated just underneath the steering wheel, operated by the fingers without removing the hand from the wheel.

Two foot pedals, the left one operating the clutch only, the right operating the transmission brake and clutch.

Change gear lever on the same shaft as emergency brake lever and is of the selected or H slot type, thereby enabling the operator to change gear without necessitating any intermediate steps.

BRAKES—Three, internal expanding, large diameter and wide face, encased and protected from dust and mud. Brakes on the rear wheels rigidly connected with the hubs, and are of the same type and size as transmission brake. They are interconnected with the clutch. Transmission brake shoe is interchangeable with those on the rear wheels.

FRAME—Pressed steel made from high carbon, hot rolled stock. Motor and transmission carried on dropped sub-frame reinforced at sides. Drop forged spring hangers.

FRONT AXLE—Front axle, I beam section with drop forged yokes, integral with the axle and free from welds.

Drop forged steering spindle and arms. Knuckles have hardened steel bushings and bolt.

REAR AXLE—Clutch drive type. Spur gear differential with case hardened steel gears. Differential casing has extended hubs running in Timken roller bearings. Wheels have Timken roller bearings and run on steel sleeves extending from bevel gear casing. Driving shaft has no weight to support and simply transmits power to wheels. Differential removable without taking off wheels. Propeller shaft entirely encased in heavy drawn steel tubing. Casing supported at forward end by ball and socket sliding sleeve, hung from cross member on frame, and therefore acting also as torsion lever.

All bearings and bevel gears adjustable.

SPRINGS—40 inch front, 50 inch rear. Single Elliptic, 2 inches wide, made from the best crucible analysis steel.

WHEELS—Artillery 32 x 4, Timken Roller Bearings. 12 spoke front, 14 spoke rear. Spokes made from first-class second growth hickory.

TIRES—Any standard American make.

BODY—New design, 4 inches wider in tonneau seat, retaining artistic lines of 1905 model. Side entrance tonneau; divided front seat; seating capacity, five people.

FINISH—Trimming and painting done in our own shops, under our own supervision. Standard color, the well known Stoddard-Dayton pearl gray, but will paint and trim to customer's own specifications if desired.

EQUIPMENT—Horn, two oil side lamps. Complete set of tools, tire repair outfit and pump.

MISCELLANEOUS INFORMATION—Wheel base, 102 inches; thread, 56 inches. Gasoline capacity, 15 gallons. Each car will be equipped with metal dust pan or apron, protecting all parts under car from mud and water.

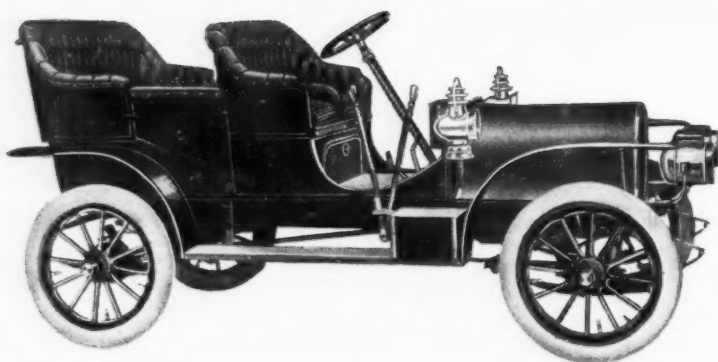
PRICE—\$2,250.00, f. o. b. Dayton, Ohio, U. S. A.

RUNABOUT—Model C. Four cylinder, water cooled, 15-18 H. P., sliding gear transmission, three speeds forward and reverse, shaft driven rear axle, 80 inch wheel base, wheels, 30 inch. Price, \$1,250.00.

Our regular 1906 Catalogue, giving full description and illustrating the same, will appear later, when it can be executed in artistic form.

A record of your name will secure a copy.

Dayton Motor Car Co., Dayton, Ohio



Type G 1906

4-Cylinder Touring Car

Four-cylinders. Air-cooled. Shaft drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Force feed oiler on the dash. 4 or 5 passengers. Side doors. 88-inch wheel base. 12 "Franklin horse-power." 1300 pounds. 35 miles per hour. Full head and tail light equipment. \$1,800.

Details of construction on pages 46, 47, 48 and 49.

To the great majority of motorists this is the most interesting and attractive car in the whole motoring field for 1906.

The ideal light family touring-car.

Light in weight, small in bulk and operating cost; but big in strength, capacity and performance.

Its 12 "Franklin horse-power" does all that any 20 horse-power car, except a *Franklin*, will do; does more than most of them; does what some of the highest-powered highest-priced cars will not do.

It carries 4 or 5 passengers actually 35 miles an hour.

It takes hills on the high gear that would balk many cars of much higher rating.

The rear seat is more than wide enough for two grown people. Add a boy or girl and it is just right.

It has the lines and looks of a big car. Being shaft-driven its four cylinders are placed "fore-and-aft" under a long rounded hood, the same as in Type D.

You can buy a bulkier and heavier car or one of higher nominal rating for less money. But you cannot buy another car that will do what this does for anywhere near the money.

It's the car of the year.

It will be the ideal light car of years to come.

FRANKLIN

Four remarkable

Type G: The new Light Ideal Touring-car Shown above.

Type E: Gentleman's Roadster. The best-built, ablest runabout in the world. Shown opposite.

Type D: The finest high-power, 4-cylinder, American road touring-car. Shown on page 48.

Type H: The new 6-cylinder, top-notch flyer. Shown on page 49.

THE MOTOR: Under hood. In **TYPES E, G and D**, 4 vertical cylinders. In **TYPE H**, 6 vertical cylinders. Bore and stroke: In **TYPES E and G** 3¼x3¼. In **TYPES D and H** 4x4.

Hood can be instantly removed, leaving motor entirely exposed.

Cylinders are cast separately and so designed that the metal is evenly distributed, thus insuring a casting free from strains and one that will remain permanently round. Cylinders are bored, seasoned and then ground, thus insuring a straight and round cylinder.

Pistons and cylinders are cast to a special analysis, insuring a very tough and close-grained iron; thereby doing away with loss of compression due to porous iron. Three eccentric rings ground round after cutting are fitted to each piston.

Crank shafts are made from the same

analysis stock as in the past, as we have never had a broken shaft. Every bearing on the shaft is ground to size.

Wrist pins are hardened and ground to size.

Babbitt bearings are used throughout the crank shaft.

All gears are enclosed and hardened.

Governor parts are all enclosed.

No parts of the motor require hand lubrication. By removing four screws the crank shaft, connecting rods and main bearings are exposed to view.

All valves are exposed, are mechanically operated, and are easily removable for inspection.

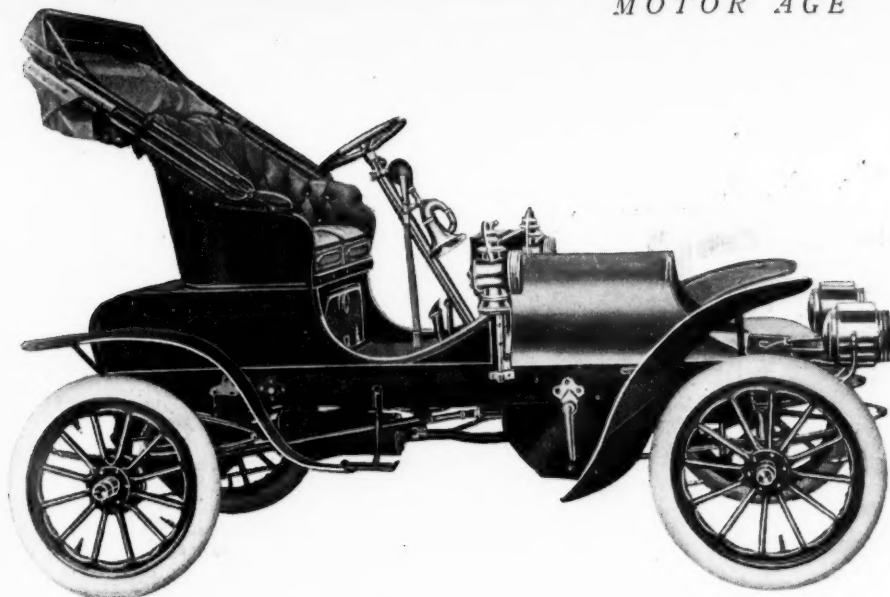
AUXILIARY EXHAUST: A port with valve at bottom of the stroke lets the hot high-

pressure gases out before the main exhaust-valve opens; thus reducing back pressure and maintaining the combustion chamber at the temperature of maximum efficiency.

It increases the power of the engine. It keeps the exhaust valves from getting burned and pitted. It keeps carbon deposit out of the combustion chamber almost completely. It positively keeps spark plugs from fouling. It allows the use of graphite lubrication in the engine.

COOLING: Direct air-cooling. In **TYPE E** it is natural; with no fan. In **TYPE G** a suction-fan wheel is used in rear of engine. In **TYPES D and H** there is also a fan on the front. It is gear driven with no belts or chains to run off or stretch.

IGNITION: Jump spark, with dry batteries arranged in two sets which may be used in-



Type E 1906

4-Cylinder Runabout or Gentleman's Roadster

Two passengers only. No tonneau can be attached. 12 "Franklin horse-power," 4-cylinder, air-cooled engine. Wheel-base 81½ inches, 7½ more than last year. Makes the car roomier, distinctly more graceful; and easier riding. Force-feed oiler on the dash. Change lever placed inside the car and forward. More convenient—especially when top is on; and handsomer. 1100 pounds. Combination ironing for canopy, cape or victoria top and glass front—a decided improvement. 40 miles an hour. Full head and tail light equipment. \$1,400. Details of construction on pages 46, 47, 48 and 49.

The ablest, speediest, most luxuriously-built runabout ever built. This year it is handsomer, easier, more remarkable than ever.

As a business runabout; a superintendent's car; or for a doctor or other professional man; for a suburbanite; for 2-passenger touring; or as a speedy roadster for the owner of a big touring-car, there is nothing to compare with it.

Not only its astonishing speed and hill-climbing ability; but its great strength, extreme mechanical refinement, responsiveness and elegant simplicity combine to make it virtually an independent type and the only example of its type.

The material and workmanship employed equal that of the best-made high-priced touring car.

It would be a mistake to class this car with the ordinary runabouts. Buying it by the pound, its price looks high; but judged by ability, amount of service rendered, and satisfaction given, there is no better value. In the long run it is the most economical of runabouts.

We will send on request a book more completely describing this car and showing its appearance with glass front and various tops.

NEWS for 1906

continued on next page

every-day-in-the-year cars

Improved oiler; carburetor; clutch; brakes and bearings. More convenient levers. Better protection of parts.

Franklin Air-cooling. 4 and 6 cylinders.
Lightness. Strength. Springs.

dependently or together. Cells are carried on running board in mud and water-proof box. Spark coil is on dash. All wiring is enclosed and protected from dirt, oil and moisture. Timer contact is made by roller, thus doing away with all wear and insuring a long life.

CONTROL: Spark control is on wheel column. Throttle control is on steering wheel. The driver has complete control without moving.

LUBRICATION: A slight, force feed mechanical oiler on dash in sight of operator furnishes oil for all parts of the motor. Transmission gears are enclosed in oil-tight case and run in bath of oil. Rear axle differential and bevel gears are enclosed in oil-tight housing and run in oil bath. Universal joints are protected from dirt and supplied with oil and grease cups easily accessible.

The oil pump is run by a wire belt which will not slip from spilled oil, and will not stretch.

CARBURETOR: Automatic float feed. Gasoline enters from lower side of carburetor and is strained through wire gauge before entering float chamber. Dirt and water are collected in a trap, which can be entirely removed or easily cleaned, without disturbing any other part of carburetor.

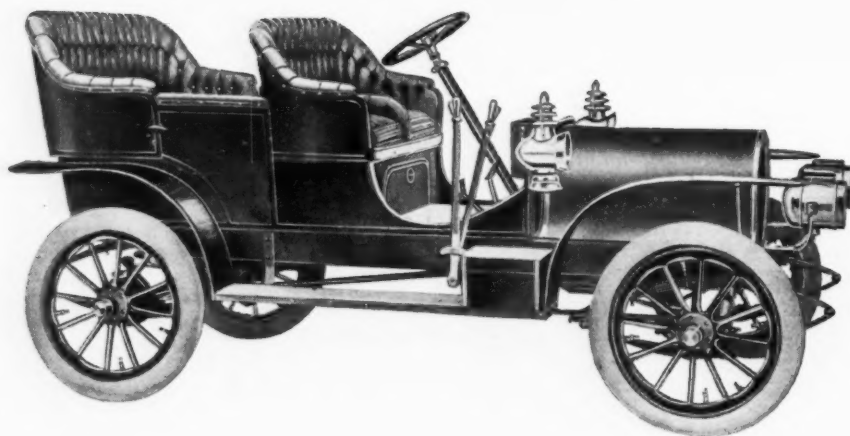
A by-pass operated by the throttle supplies auxiliary air in proper proportions. This by-pass being mechanically operated, does away with springs, separate air control and a multiplicity of other parts. All connections are made with ground joint unions.

We manufacture our own carburetor. Many carburetors purchased on the market and which give satisfaction on ordinary motors

are not efficient enough for *Franklin* motors.

CLUTCH: A disc clutch perfected in all details allows the car to be started slowly, easily and without jar. A slight oil film carried between the discs makes the changes from one speed to another unnoticeable. There is no slipping after engaging.

DRIVE SHAFT: A bar of nickel steel of square section and of ample strength. Though designed to stand rough usage this shaft is the weakest member in the entire power transmitting line—the part most likely to break or bend. The advantage of this is that all gears and expensive parts are insured against injury. The shaft is more easily replaced than other parts. As there is absolutely no machine work on it except squaring the ends, in case of accident a temporary shaft is obtainable anywhere.



Type D 1906

4-Cylinder Touring Car

Four cylinders. Air-cooled. Shaft-drive. Sliding gear transmission. Three speeds and reverse. New and perfect disc clutch. Force-feed oiler on the dash. 5 passengers. Side doors. 100 inch wheel base. "Franklin horse-power." Full head and tail light equipment. 1800 pounds. 40 miles per hour. \$2,800. Details of construction on pages 46, 47, 48 and 49.

The finest and speediest of all 20 horse-power Touring Cars.

Money will not buy more luxury and comfort, or better touring mileage in a car of 4 cylinders or less.

You cannot safely get a better average mileage out of the usual heavy 40-horse-power car than out of this 20 "Franklin horse-power" D.

Its patterns are like the G car but it has larger cylinders; longer wheel-base, and 8 more "Franklin horse-power." It is roomier and even more luxurious in appointments. For combined strength, speed, passenger-capacity, lightness and easy-riding it has no equal, except Type H.

FRANKLIN NEWS con- tinued

Clutch and brake levers are put forward out of the way so that the driver can get in and out easily. On the E car they are placed inside.

With the E transmission the gears are always in mesh. There can be no stripping of gears. When the high clutch is on no gears are used at all, the drive being direct from the engine shaft to the rear axle. The chain-drive has proven so completely successful on the E car, that even the opponents of chain-driven cars agree that here it is "all right."

BRAKE CONTROL: Three band brakes, one on each rear wheel and one on the transmission brake drum. For 1906 these have all been increased in diameter and face until they are now more than amply safe. All brakes are double-acting, and each brake alone is sufficient to hold car under ordinary circumstances.

AXLES: Front axle is made from nickel steel tube. This insures lightness, rigidity and a superabundance of strength. Yokes and knuckles are of pickel steel. Bearings are of Timken make, especially designed for Franklin cars.

Rear axle on TYPES G, D and H, divided driving axle running in tubular axle on ball-bearings. On TYPE E, divided driving axle running in tubular axle on Hyatt roller bearings.

Rear axle is of nickel steel, especially treated, and of from 58 to 64 tons tensile strength per square inch. Differential gears are in an oil-tight case. Differential and bevel drive gears are made from nickel steel forgings.

NICKEL STEEL: This material is specially adapted for automobile construction

and will be used the coming season throughout Franklin cars. Our transmission gears and shafts, drive-shafts, differential in rear axle, bevel driving-pinions, clutch-shaft, brake rods, rear and front axles, knuckles and yokes are made from this material. It was only with great difficulty that we could secure this stock in forgings. Drop forge manufacturers dislike to handle this material, as it is very tough, slow to forge and extremely hard on dies. It can only be machined by using powerful machines and high-speed steel tools. As the stock is hard to get, we were obliged to order early in the spring and in the quantity wanted for a season's supply. This is new in our hands. Customers are assured of the best stock obtainable. Manufacturers who have ordered late cannot entertain much hope of getting this stock in time for early 1906 deliveries. We specially desired this stock, as it possesses maximum strength and minimum weight. It is only a little way removed from armor-plate.

STEERING GEAR: Irreversible wheel.

SPRINGS: Four full elliptic springs. On Type E 20-inch. D and H 40-inch. These springs take up all road shocks—horizontal, vertical and from every direction—more completely than can be done by any other means, thus saving passengers and car.

SILLS: Our sills are of specially selected second growth ash seasoned one year. Our buyer personally inspects every stick of timber which is purchased for Franklin sills.

Wood sills are admitted to be a distinctly Franklin feature. When mounted on four full elliptic springs these sills give a combination for easy riding which is equaled by no other cars in the world.

WHEELS: Wood—artillery type. On E and G 28-inch; D, 32-inch; H, 34-inch.

TIRES: On Type E, 28x3; G, 760x90 front; 760x90 rear; D, 32x3 1/2; H, 34x4.

TANK CAPACITY: In TYPES E and G, 7 gallons gasoline; 6 pints lubricating oil, enough for 125 miles. In TYPE D, 12 gallons gasoline; 6 pints lubricating oil, enough for 150 miles. TYPE H, 16 gallons, enough for 150 miles. A skillful driver can increase this 20 per cent.

TREAD: Standard.

BODY: In TYPES G, D and H, aluminum, with two side doors, divided front seat. Single seat for three behind. In TYPE E, aluminum, built on steel angles; divided seat. Special soft cushions.

Aluminum is both stronger and lighter than wood. Will not crack nor splinter, and holds finish better.

Side-doors open towards front; on extension hinges, swinging clear open and giving wide entrance.

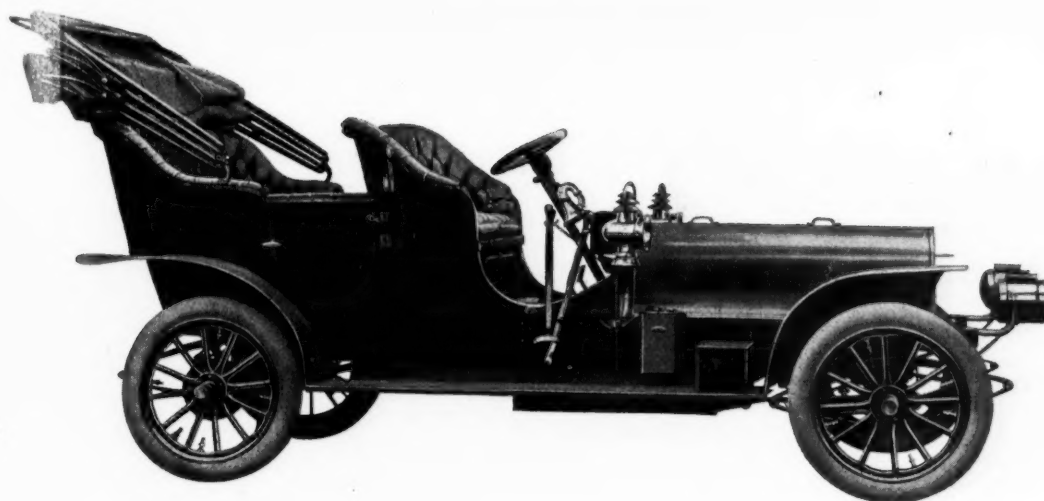
HOOD: Aluminum, and instantly removable.

FRONT MUD-GUARDS: Improved pattern, giving complete protection from mud.

MUFFLER: Small but entirely effective.

BOOT: A strong, light steel boot protects the motor from dirt and water. It is so designed that it will not accumulate oil and gasoline, thus protecting the car from danger by fire. A very important consideration.

EQUIPMENT: Two oil side lamps, 1 rear lamp, 2 headlights, horn, complete tool equipment. Best quality lamp, and on G, D and H acetylene mirror-lens headlights.



Type H 1906

6-Cylinder Touring Car.

Six cylinders. Air-cooled. Shaft drive. 3-speed sliding gear transmission. New and perfect disc clutch. Wheel base 114 inches. 30 "Franklin horse-power." 2,400 pounds. 50 miles per hour. Full head and tail light equipment. \$4,000. Complete specifications on pages 46, 47, 48 and 49.

This car combines great power with light weight to a degree never before attained. It is the *Franklin* idea pushed up to the highest notch.

For speed it is the "Empire State Express" or "20th Century Limited" of automobiling.

The six cylinders have the same advantage for a very high-power car that four cylinders have over any smaller number in a car of moderate power.

The engine force is divided into six impulses; which

balance the motor rotation with extreme evenness and produce the utmost smoothness of running and flexibility of operation.

They also permit tremendous power and speed without a corresponding increase of weight or strain on the car.

Type H is the *Franklin* of all the *Franklins*.

Service. Economy. Value.

All *Franklin* Cars can be used right through the winter. No weather can freeze them. With air-cooling there's nothing to freeze.

They call for no plumbing work at any season; no expert "chauffeurage;" no warm barn.

They give continuous all-the-year-round service; and when topped are perfectly comfortable in any weather.

They are the strongest cars of their weight ever built; and the lightest cars of their power.

They cost 50 per cent more per pound to build than any other cars.

Refined engineering and simple design make them efficient far beyond proportion to their ratings; and this efficiency is all available; on all roads, all the time.

Their great strength, responsiveness to control, lightness and perfect spring-suspension make them safe and comfortable when driven at speed on roads which would be neither safe nor comfortable at such speed for any other cars.

No matter how fast a heavy car can go on level boulevards, it cannot safely—much less comfortably—be driven

at speed over average American roads. Neither the car nor the passengers will stand it.

The high-power *Franklins* cool as completely and perfectly as the runabout, in hot weather or at a hot pace. This is a demonstrated fact, beyond shadow of doubt. The proofs fill a book; if you want it we'll send you the book.

All *Franklin* cars are remarkably quiet.

Franklin touring-cars do the same work as the heaviest highest-priced cars; but are far easier to ride in, to handle and to care for; far more enjoyable, safer and vastly more economical.

Heavy cars are costly to buy, to operate and to maintain. They are frightfully expensive in their wear-and-tear on tires.

Franklins save fuel, oil, repairs and above all, tires.

Franklins give you more of all the things you want and also save your money.

They are sold under a strong and definite guarantee.

The *Franklins* shown here are not only up-to-the-minute cars of the season; but their far advanced design and detail perfection will make them favorite and standard cars of many seasons. Not one-year cars; but cars "for keeps."

"The Motor Car of the Future"

H. H. FRANKLIN MFG. CO., Syracuse, N. Y.

Member Association Licensed Automobile Manufacturers

GO PREPARED

FOR ALL KINDS OF WEATHER

TOPS

There are thousands of automobilists in this country who do not realize that they can buy a top of the **best grade and durability**, complete with side and rear curtains, for

\$75

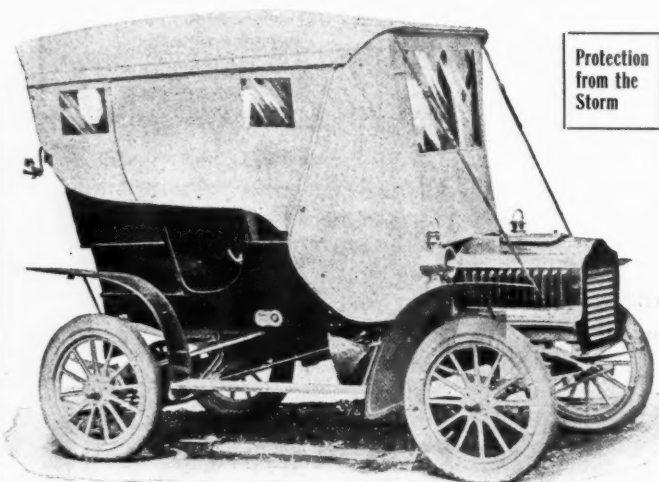
crated for shipment, F. O. B. Detroit, and ready in every particular to attach.

Our line includes every possible style:

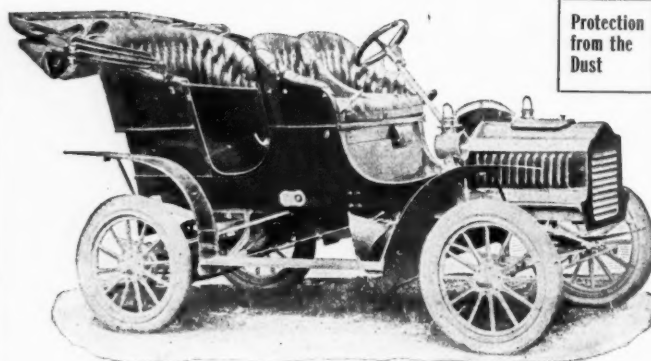
4-Bow Extension,
3-Bow Cape,
Or Canopy.

Front strap or side brackets as preferred.

Steel bow sockets enameled, or leather covered, as specified.



Protection
from the
Storm



Protection
from the
Dust



Protection
from the
Sun

TOPS

We **guarantee** our tops in **every detail** to be the equal of any \$125 top ever built.

The three cuts illustrate the same top—

The first with rain curtains in position.

The second with curtains detached and top folded back as a dust shield.

The third with top in position as a sun shade.

TO THE DEALER:

A great inducement if you act at once.

Send for complimentary copy of

"Man and His Motor"

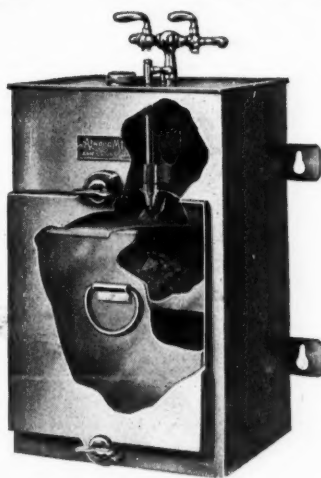
—the most valuable motor book ever published.

**AUTO
EQUIPMENT CO.**

260 Jefferson Avenue
DETROIT, MICH.

THE POWER BEHIND THE THRONE.

— in an
Acetylene
Gas Lamp—
is the
Generator.
If you have
a good
Generator
you are
certain of
having a
good light.



PATENT APPLIED FOR.

Atwood
Generators
surpass
anything
ever
heretofore
placed
upon the
market.
They are
simple and
effectual.

EVERY OBSTACLE HAS BEEN OVERCOME

ATWOOD GENERATORS

are the result of our 30 years' experience as
Lamp makers. Manufacturers who place their
orders for 1906 Lamps before seeing the ex-
tremely artistic Atwood product and that Per-
fect Generator will regret their haste. Sure.
Ours is an attractive Lamp proposition.

WRITE US

ATWOOD MFG. CO.
AMESBURY, MASS.

Motor Age Circulation

How Many of Our Esteemed Contemporaries
Can Show a Letter as Strong as This?

MOTOR AGE, Chicago, Ill.

FLINT, MICH., August 22, 1905.

GENTLEMEN:—We are in receipt of your favor of the 17th and also the current week's issue of the MOTOR AGE. We wish to compliment you upon the write-up by which you have favored us in the columns of your magazine. Referring to advertising space, will say that we are not quite ready to place a contract for this work, but hope to be able to do so in a few days, and will no doubt favor you with same, as we feel that the results obtained from advertising in your medium so far have been very satisfactory.

Again thanking you for the favor extended, we remain,

Yours truly,

AUTO BRASS & ALUMINUM Co.,
Per O. M. Nacker, Sales Manager.



The above cut represents Post Office Receipts for 8,577 pounds net, of issue of September 28, 1905.

Each paper, including wrapper, weighed an average of 12 ounces.

8,577 pounds divided by 12 ounces equals.....	11,436 papers
We also sold, non-returnable, to Western News Co. and news stands direct.....	657 "
Mailed under stamps to foreign addresses.....	89 "
Retained for office sales and distribution.....	350 "

Total for week of September 28.....	12,532 "
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STATEMENTS PREVIOUSLY PUBLISHED.

Average weekly edition for July, 11,755—see page 38, August 24 issue.

August 17, page 42, statement for August 3.....	13,159 papers
August 24, page 39, statement for August 10.....	12,269 "
August 31, page 38, statement for August 17.....	12,176 "
September 7, page 29, statement for August 24.....	12,271 "
September 14, page 42, statement for August 31.....	12,518 "
	62,393 "

Average weekly edition for August, 12,468

September 21, page 32, statement for September 7.....	12,220 papers
September 28, page 46, statement for September 14.....	13,106 "
October 5, page 46, statement for September 21.....	12,283 "
Including above for September 28.....	12,532 "


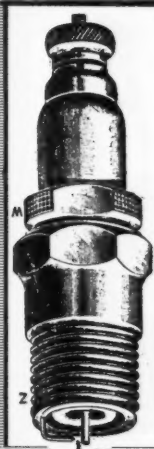
Total for 4 issues in September.....	50,141 "
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Average September issues, 12,535.

MOTOR AGE,

N. H. VanSicklen

Manager.

1/32
OF AN INCH

THIS IS THE
AIR SPACE THE CURRENT MUST OVERCOME IN ORDER TO SPARK.



**ONE
INCH**

**MORE THAN
ONE
FULL INCH
OF SOOT DEPOSIT**

**ONE
INCH**



This is what the current in a "SOOT-PROOF" PLUG must overcome in order to short circuit

BUT

**ONE
FULL
INCH**

of Soot offers more resistance than

$\frac{1}{32}$ of an inch of air

Therefore

The "SOOT-PROOF" PLUG

Does not and CANNOT SHORT CIRCUIT.

C. A. MEZGER, 803 West 80th St., New York

CHRISTMAS DIAMONDS ON CREDIT

THE LOFTIS SYSTEM AT CHRISTMAS TIME

is a great and timely convenience to thousands. It enables persons in all circumstances to make beautiful and appropriate Christmas Gifts with a very small initial cash outlay.

Everyone at Christmas time is anxious to give to their loved ones handsome Christmas Presents but it is not always convenient. The **Loftis System of Credit, means convenience.** Diamonds, Watches and Handsome Jewelry of all kinds for Christmas Presents on convenient terms.

You Are Welcome to Credit whether you are a moderate salaried employee or a wealthy employer. The Loftis System makes any honest person's credit good by adjusting terms to meet their earnings or income. Do not think that you must give a cheap, ordinary present because you can only spare a few Dollars just now. With five or ten Dollars for a first payment you can give Wife, Sweetheart or Mother a beautiful Diamond which will last forever, enhance in value and continually bring pleasant thoughts of the giver's generosity.

Love is the Real Santa Claus. It is love which brings the joys of a Christmas remembrance and a Diamond is the most appropriate of all gifts. Write today for our Big Handsome Christmas Catalogue.

Our Christmas Catalogue for this year will be the largest and most complete we have ever issued. Write for a copy today and glance through the wealth of Gems, Fine Watches and miscellaneous Jewelry illustrated on its many pages. Beautiful Xmas presents for all. Diamond Rings, Brooches and Pins for Wife, Sweetheart, Sister or Mother. Diamond Studs, Scarf Pins, Fine Watches, Charms, etc. for Husband, Father, Lover or Brother.

At your leisure in the privacy of your home you can select the Diamond, Watch or piece of Jewelry you prefer. Write us and we will send you any article you may select subject to examination and approval. Examine it thoroughly. You are perfectly free to purchase or not just as you please. We pay all charges. We take all risks. We deliver goods anywhere in the United States.

We invite you to open an account with us, become acquainted with the famous **Loftis System.** Remember it means convenience. Every transaction is on honor, prompt and satisfactory, one fifth the price to be paid on delivery. You retain the article, sending balance in eight equal monthly amounts direct to us.

Cash Buyers are welcome too, and we have an equally attractive offer for them, as follows: Pay cash for any Diamond, and we will give you a written agreement to take it back at any time within one year, and give you spot cash for all you paid—less ten per cent. You might for instance, wear a fifty dollar Diamond for a year, then send it back to us and get forty-five dollars, making the cost of wearing the Diamond for the entire year, less than ten cents weekly. No other house makes this offer. Write today for Christmas Catalogue.

Diamonds As An Investment are unexcelled. They are increasing in value every year. The Chicago Journal says in an editorial that they will advance twenty per cent in value during the coming twelve months. What other present is there so acceptable and so profitable? Write today for Christmas Catalogue.

Do Your Christmas Shopping Now. Do it conveniently and leisurely in the privacy of your own home. Don't wait until the Christmas rush is on. Now is the time to secure the choice selections and have ample time to inspect the goods. Write Today for our Big Handsome Christmas Catalogue.

A Test of Merit. In competition with the entire world at the St. Louis World's Fair last year our goods, prices, terms and methods won the Gold Medal, the highest award given to any exhibitor. No stronger endorsement of the Loftis System could be given. Write Today for our Big Handsome Christmas Catalogue.

Our Reliability. We refer you to your local bank, and they will consult their commercial guides Dun and Bradstreet and tell you that our responsibility and promptness are unquestioned. We give a signed guarantee as to the quality and value of every Diamond sold. Every Diamond we sell may be exchanged at full price at any time for a larger stone.

WRITE TODAY FOR OUR CHRISTMAS CATALOGUE.

LOFTIS

BROS & CO. 1858

DIAMOND CUTTERS

Watchmakers, Jewelers

Dept. M560 92 to 98 State St.



CHICAGO, ILLINOIS, U.S.A.

SAVE

A DIAMOND

DIAMONDS WIN

HEARTS

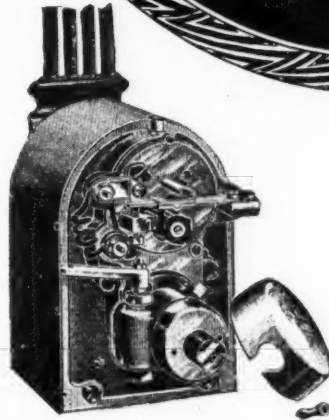


SOLE IMPORTER
for the U.S. and CANADA
of the Electric Ignition
Apparatus of

J. LACOSTE & CIE
of PARIS.

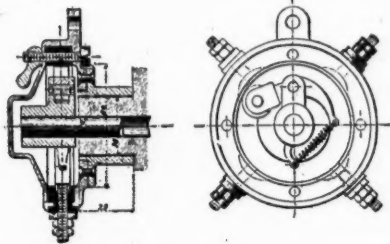


THE
"LACOSTE"
HIGH-TENSION
MAGNETO



FOR JUMP SPARK
IGNITION

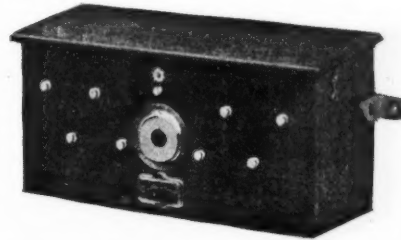
The "Lacoste" High-Tension Magneto is the synonym for simplicity and perfection.



Wipe Contact Commutator

The proof of the efficiency of the
"LACOSTE"

Commutator lies in the fact that there are more of them in use than all other makes combined.



The "Lacoste" Coil

Is admitted to be the best induction coil made. The car which recently broke the 1,000-mile world's record was equipped with it. One thousand miles in 23 hours, 33 minutes, without a single adjustment, is certainly a remarkable performance.

WRITE FOR
COMPLETE
CATALOGUE

LEON RUBAY
also carries in stock
ZANARDINI LAMPS, HORNS
CONTINENTAL, MICHELIN AND
SAMSON TIRES

140 West 38th Street NEW YORK CITY
Telephone 2722 J.B. Street
Cable Yabur N.Y.



ANNOUNCEMENT

The 1906 *Rainier*

30-35 H. P.

has arrived. Come and inspect, ye automobile experts—you who really appreciate beautiful workmanship and design, and you will admit that at last THE American automobile has come. Look over the following specifications, then call and try the car:

Engine—30-35 H.P., 4-cylinder, water-cooled.

Ignition—Sims-Bosch Magneto. Make and break spark.

Transmission—Sliding train, 3 forward and one reverse.

Rear Axle—Bevel gear drive, clutch driven hub, ball bearings.

Front Axle—I beam section, ball bearings.

Frame—Cold rolled pressed steel, aluminum under-bonnet covering entire engine and transmission.

Wheel Base—104 inches.

Wheels—Imperial whalebone, grade A; 2d growth hickory.

Tires—Continental, 34x4.

Valves—Mechanically operated, inlet and exhaust interchangeable.

Carbureter—Float feed, requiring no adjustment.

Body—Full aluminum, double side entrance.

Brakes—Two internal expansion, dust protected, operating on rear hubs through emergency lever holding either forward or backward. Foot brake operates on propeller shaft. Both brakes phosphor bronze against steel.

Equipment—Two headlights, 2 side lights, 1 rear light, 1 horn.

Price, \$4,000

The 22-28 h. p., which was the hit of the season in New York, will be continued as heretofore without any changes. 4-cylinder, 98-inch wheel base, La Coste coil, French battery, Continental tires, aluminum side door body.

Price, \$3,500

Both models guaranteed free of repairs for one year. The world's broadest and most liberal automobile guarantee.

Landaulet bodies for immediate delivery. Limousines for October and November delivery.

THE RAINIER COMPANY

Broadway, cor. 50th Street

NEW YORK

Boston Agents, Morrison-Tyler Motor Co.

Good agents wanted in unassigned territory.

A CADILLAC Dealer

Mr. C. C. Henry, of Summit, N. J., who has sold over 40 Single Cylinder Cadillacs since June 15, 1905, recently placed the following four-inch double column ad in the two largest local papers published in his locality:

WANTED Second-Hand Model F CADILLAC

AT ONCE STATE PRICE

G. G. HENRY

Cadillac Factory Agent

Summit

New Jersey

The Jerseyman, Sept. 22, 1905

WANTED Second-Hand Model F CADILLAC

AT ONCE STATE PRICE

G. G. HENRY

Cadillac Factory Agent

Summit

New Jersey

Madison Eagle, Sept. 22, 1905

WANTED—A Second-hand Model F Cadillac at once; state price. G. G. HENRY, Cadillac Factory Agent.

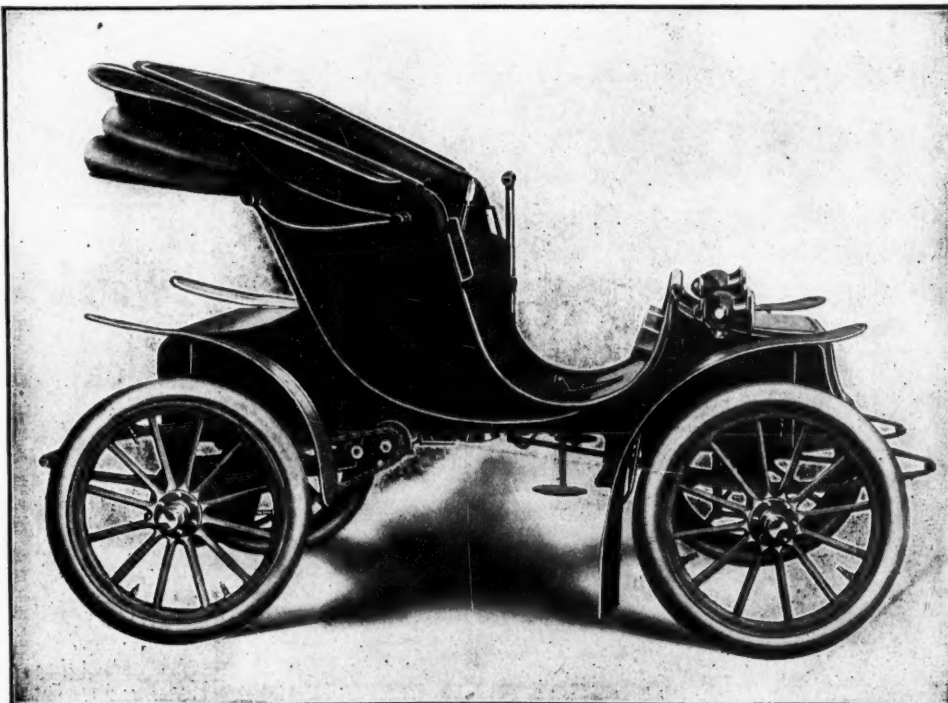
Herald, Summit, N. J.

Mr. Henry, writing under date of Oct. 3, 1905, says: "I did not get a single reply. No one in this country wants to dispose of their single cylinder Cadillacs."

The above ought to convince most any level-headed dealer that the CADILLAC Agency is a valuable asset.

CADILLAC AUTOMOBILE COMPANY :: Detroit, Mich.

The Columbus Electric



DOUBLE CHAIN DRIVE
SOLID REAR AXLE

75 MILES on ONE CHARGE

Weight 1,400 Pounds

Any Speed up to
20 Miles Per Hour

NOISELESS ODORLESS
CLEAN SIMPLE

An Ideal Pleasure
Vehicle

FULL INFORMATION
SENT ON REQUEST

THE COLUMBUS BUGGY CO., Columbus, Ohio

DON'T EXPERIMENT

Just Sell

THE FORD

MR. AGENT:—Over 2,000 Automobile buyers decided during the past season not to experiment. They all bought "Fords." It is even more important for the retailer to *sell* a car of known merit than it is for the purchaser to *buy* one. The buyer only loses his *money*, but the Agent who sells a car not up to standard loses both *prestige* and *reputation*.

The success of the Ford Motor Co. is built on the success of the Ford Cars, and you know how great our success has been. Remember that people like to do business with successful firms, and a *car with a reputation is easier to sell than an unknown*.

You know the general rush to the Ford exhibit at the shows and how they all ask "*What has Ford this year?*," plainly indicating that automobile men look to Henry Ford for new ideas and originality of design.

We have a surprise or two up our sleeve this year—particulars about October 15th—nothing before—except that there is certainly good business ahead for the Ford agent in 1906, and it might be well to write us and see if we can give you the proposition and the territory you require.

FORD MOTOR CO.,

Member American Motor Car Manufacturers' Association, Chicago

Detroit, Mich.

Canadian Trade supplied by The Ford Motor Co., of Canada, Ltd., Walkerville, Ont.

The Hartford Perfected Dunlop Tire

Dear Sirs:—

Paris, July 28, '05.

We have arrived in Paris coming over the Route Nationale from Aix les Bains via Lyons and Nevers. The roads were exceedingly trying, very hard and a lot of "pave" or cobblestones. I had two punctures. These were the only mishaps in 2136 miles and the tires have stood the hard work without showing any other signs of wear and tear. People here consider this a very good record as many of the best foreign tires blow out from the heat.

Yours truly,

Walter Hale

Postal

No. 3.

Watch

for

others

to

follow.

The Hartford Rubber Works Company,

Hartford, Conn.

The Incomparable WHITE

The Car for Service

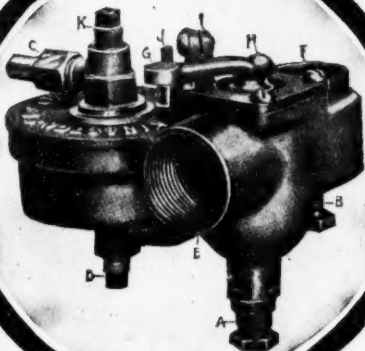


White Reliability

Did you read in Motor Age of September 14th the account of the trip of Ezra H. Fitch and his party in three White steamers through the forests of Maine and Quebec?

If a White car be depended upon to traverse forest trails, to ford streams, to travel through a desolate region hundreds of miles from any base of supplies, can it not be relied on implicitly for such service as you require from a car? :: :: Write for literature

WHITE SEWING MACHINE **COMPANY** CLEVELAND OHIO



KINGSTON 1906 TYPE-K- AUTOMATIC CARBURETOR

EASY TO UNDERSTAND EASY TO OPERATE

Fuel controlled entirely by equalizing automatic air valves.

Will increase POWER and CONTROL of any 1905 FORD or OLDS car, or money back.

Positively will not accumulate fuel in, or CLOG LONG INLET PIPES.

Perfectly adapted to gasoline cars, boats, airships and motors for any kind of service.

Built for business by the oldest manufacturers in the business.

OVER 29,000 KINGSTON CARBURETORS IN USE

KINGSTON MUFFLER



**IMPROVED
FOR 1906**

BYRNE, KINGSTON & CO.,

KOKOMO, INDIANA, U. S. A.

This AUTO TIRE has no BAD HABITS

It won't creep—it won't rim-cut—it won't come off the rim when run deflated no tire bolts required to hold it on the rim—and you can take it off and put it back in 60 seconds, using nothing but the hands. And it's a Tire, besides, that's as resilient as a "soft" tire, and will outwear most "hard" tires.

Sounds like a fish story, doesn't it?

But it's a *fact*, nevertheless.

Barney Oldfield didn't believe it, either, but he does now.

We *showed* him—he saw with his own eyes—and now he uses the Goodyear Detachable Auto Tire with the Universal Rim in all his races.

He used this tire at the Boston meet on Sept. 9th, where he made five miles in 4:55 and a mile in :55 1-5—breaking the track record.

You ought to hear Barney's chaffeur sound the praises of the Goodyear Detachable to all who will listen to him—hear him tell how reliable it is—how it saves him time, trouble and worry and makes his position easy. He says he never thought it possible (before using the Goodyear) to embody all the good points a tire *ought* to have in one single tire.

We wish you could come with us to the factory or to one of our branch stores. Then you could see in no time for yourself just why and how these things are

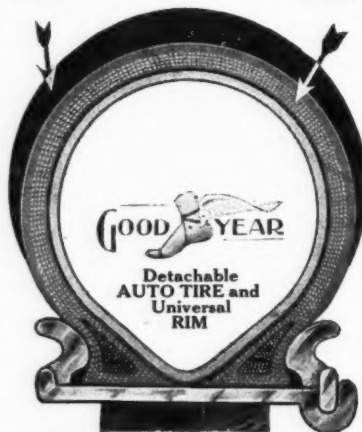
true. You can "see through" it all instantly when the tire is before you.

We'll try, however, to explain just *one point*, here.

Why the Goodyear Detachable Auto Tire is *Durable* and *Resilient* at the same time.

Dense, Tough
Rubber

Soft, Springy
Rubber



Look at the section of the Goodyear Tire in the center column. Notice the crescent shaped portion in solid black

where the wear of the road comes. That's dense, firm rubber, as tough as rawhide—practically no wear out to it.

Now right underneath this is the remainder of the outer casing (shown in grey) which is made from pure para rubber, as resilient and springy as it is possible for rubber to be.

These two different kinds of rubber—the dense, tough composition, to take the wear, and the soft, elastic rubber, to make you ride easy—are made into one solid piece by a special process. You can't skin the two kinds of rubber apart with a knife. Try it if you doubt.

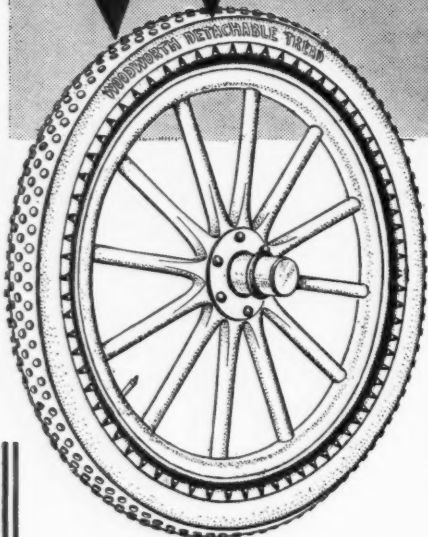
The soft rubber portion is strengthened by having our *special fabric* vulcanized into it. This fabric is not the hard, inflexible sail cloth used in ordinary tires, but is woven like basket work, or an open-work stocking, and *gives* back and forth under pressure, and allows the elasticity of the rubber full play.

The dense rubber, the soft rubber and the special fabric together make a tire that's almost as durable as a *solid* tire, a tire difficult to puncture yet one which is as *resilient* as a man could reasonably ask.

Our "Good News Book" tells more about the good points of this trouble-saving tire. You ought to get it now, for the Goodyear Detachable Auto Tire with Universal Rim will be "the only tire" next season.

THE GOODYEAR TIRE & RUBBER COMPANY, Wallace Street, Akron, Ohio.
Branches in following cities: Boston, 6 Merrimac St.; New York, 253 West 47th St.; Chicago, 110 Lake St.; Cincinnati, 242 East Fifth St.; St. Louis, 1219 N. Broadway; Cleveland, 69 Frankfort St.; Philadelphia, 1321 Spring St.; Denver, 220 Sixteenth St.; and Detroit, 242 Jefferson Ave.

WOODWORTH DETACHABLE TREAD



FOR AUTOMOBILE TIRES

Is the proper equipment for fall and winter use. It prevents slipping and skidding on muddy or icy streets. It also protects the tires from hard, frozen roads. The treads can be put on without removing the tires from the wheels. They are held rigidly on the tires by side-wires which pass through the loops and are tightened by small nuts. No special tools or equipment are required to apply them—with a wrench and a pair of pliers anyone of ordinary ability can do the work.

Can be used on any pneumatic tire, no matter how badly worn, if it is strong enough to stand the air pressure.

You will need something for use for this fall and winter. Why not get the best thing there is? They are not exorbitant in price.

WRITE FOR CIRCULAR, GIVING DESCRIPTION AND PRICES

LEATHER TIRE GOODS CO.

**NEWTON UPPER FALLS,
MASSACHUSETTS**

Business and the Oldsmobile

As a business man, when you decide to buy an automobile, you naturally turn to the trim, ever ready runabout, whose popularity among business men has won it the title of "An Office on Wheels."

It has been found that for daily use about town or even for runs into the country, the standard runabout, with its 7 h. p. single cylinder motor, is the most economical to operate and gives the most efficient service.

Traveling men have adopted it both for city service and, in a number of instances, for covering territory made up of small towns in well settled sections. For example, in Southern Michigan and Northern Ohio one man has used an Oldsmobile runabout for the past three seasons in visiting 225 towns, driving in so doing 8,000 miles each season.

Others have had equally satisfactory experience.

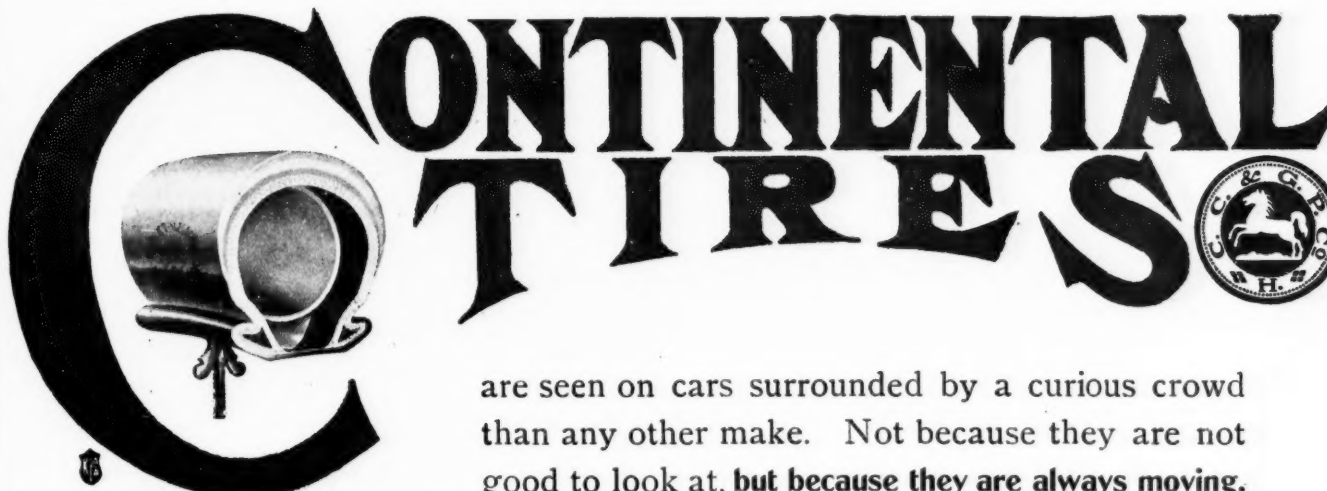
Send for Catalog 52, giving complete particulars of our line.

OLDS MOTOR WORKS

Member Association Licensed
Automobile Manufacturers

Lansing, Mich., U.S.A.

FEWER



The graphic features the word "CONTINENTAL" in a large, bold, serif font, with "TIRES" in a similar font below it. To the left of the word "CONTINENTAL" is a large, stylized letter "C" that frames a detailed illustration of a tire. To the right of the word "TIRES" is a circular logo featuring a horse and the text "G. C. & C. P. C. H. 2".

are seen on cars surrounded by a curious crowd than any other make. Not because they are not good to look at, but because they are always moving.

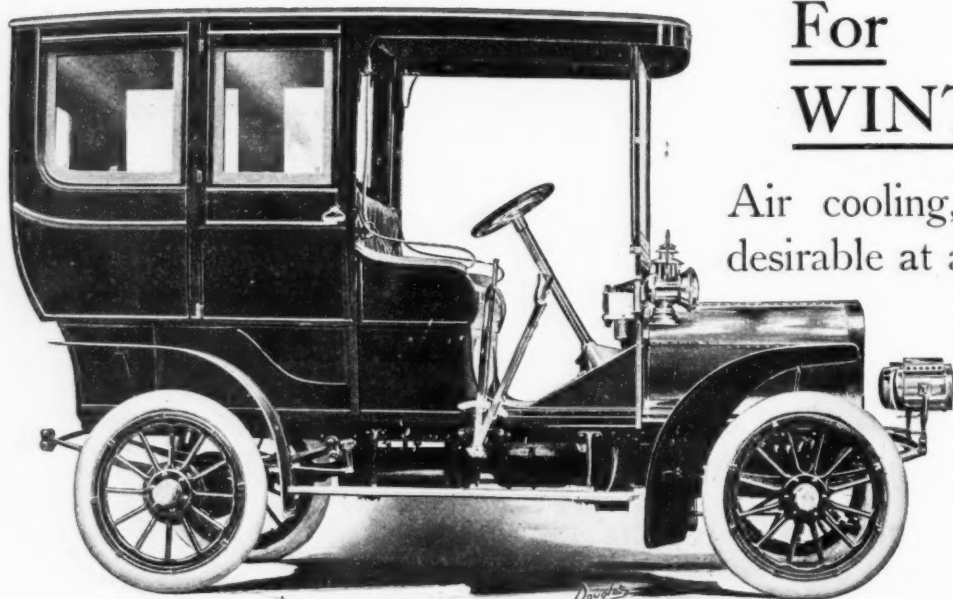
THE CONTINENTAL CAOUTCHOUC CO.

EMIL GROSSMAN, Gen'l Mgr.

43 WARREN ST., NEW YORK

Factory, HANOVER, GERMANY

CORBIN CARS



For WINTER USE

Air cooling, which is highly desirable at all seasons, is especially advantageous when applied to cars for cold weather driving.

Corbin Model D Limousine
\$3,000 to \$3,500

The Corbin Motor Vehicle Corporation NEW BRITAIN, CONN.

NEW YORK, 4 West 38th St.

BOSTON, 163 Columbus Ave.

PHILADELPHIA, 629 North Broad St.



THE Maxwell

PERFECTLY SIMPLE
SIMPLY
PERFECT

16 H. P. Touring Car
\$1,400

THE CAR that made a perfect score in the Glidden Tour—1,004 miles without a single adjustment. No car at less than twice the price made **AS GOOD** a record. No car **AT ANY PRICE** did better.

THE CAR that won a victory over all cars costing from one to two thousand dollars in the "Climb to the Clouds" at Mt. Washington. Unlike some contestants, we did not have to send three cars to get one up, but sent the **SAME** car up **THREE TIMES**.

THE CAR whose regular stock 8 H. P. Runabout type won the race at Long Branch August 19, making four miles in 5 min. 33 sec., and defeating cars listed at several times the price.

The automobile that has done these things **MUST** be worthy of your consideration. Look at as many cars as you please, but don't buy before seeing the Maxwell.

The agency field is filling fast. If you contemplate applying for a Maxwell agency, better do it now.

8 H. P. Tourabout
\$750

MAXWELL-BRISCOE MOTOR CO.
TARRYTOWN, N. Y.

Central Western Representative:
A. F. CHASE.

Members of American Motor Car Manufacturers' Association.
Agents in principal cities.

New York Agents:
MAXWELL-BRISCOE, INC.

Classification Distinctive... WHY?

The -Lightest, the Strongest, Most Durable, Most Efficient, Best Finished. Attractive in Rich Finish and Design, Simply Manipulated.



Absolutely Safe, Perfectly Clean, Best to Ride, Most Economical to Keep. Always Satisfactory. A Carriage Any Lady Can Drive.

THE BAKER ELECTRIC

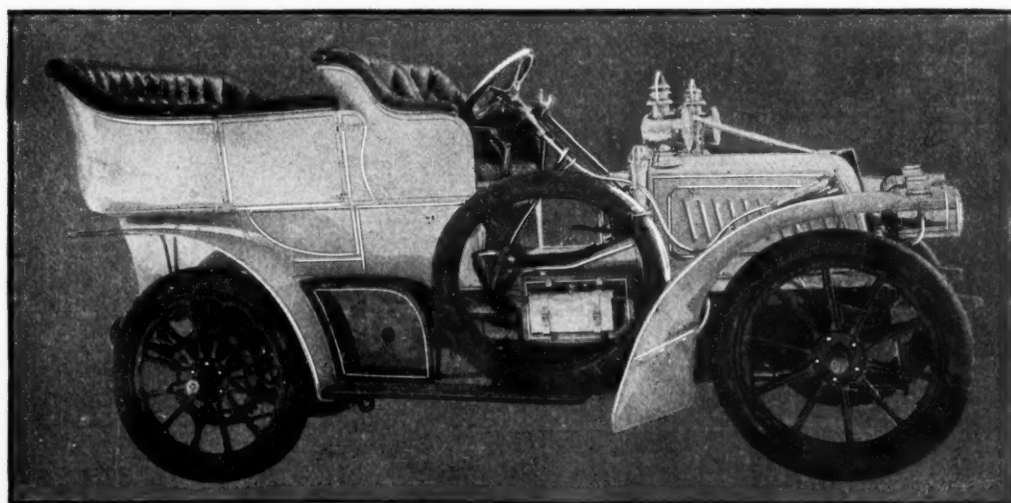
SEND FOR OUR BK CATALOG

THE BAKER MOTOR VEHICLE CO. Cleveland, Ohio

Chicago Agents: PARDEE-ULLMANN CO., 1218-20 Michigan Avenue, Chicago

WORTHINGTON AUTOMOBILE COMPANY

547 Fifth Avenue New York City



24 h. p. Berg Touring Car

IMMEDIATE DELIVERY

MEMBERS A. L. A. M.

When Writing to Advertisers, Please Mention Motor Age.

The Automobile WASHSTAND-TURNTABLE

It greatly increases the capacity of a garage by saving the space otherwise required for maneuvering cars. It also permits a car to always face the door, thereby avoiding the inconvenience and danger of accident incident to backing it, when the approach is difficult.

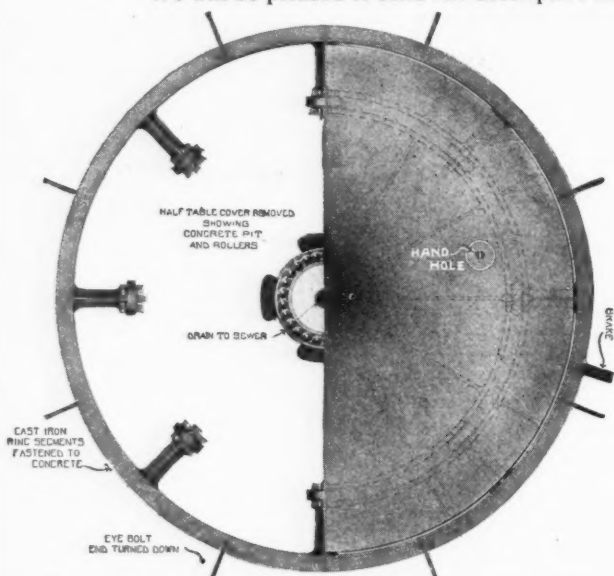
The table is of cast-iron supported by a ball-bearing pedestal in center and rollers near its outer edge. It rests in a concrete pit about 12 inches deep, the edges of which are protected by an iron ring or curb as shown.

It moves easily, is practically indestructible and is absolutely fire-proof.

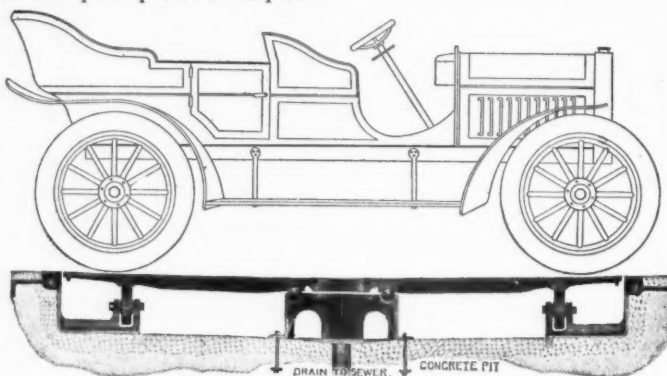
It greatly facilitates the washing of cars, all water from surface of table and garage floor passing to sewer through a drain pipe in center of pit.

We make Washstand-Turntables and also plain turntables (without the washstand feature) for wheel bases up to 126 inches.

We will be pleased to send full descriptive matter and quote prices on request.



Sectional views of WASHSTAND-TURNTABLE Patent applied for.



LINK-BELT Machinery Co.

CHICAGO

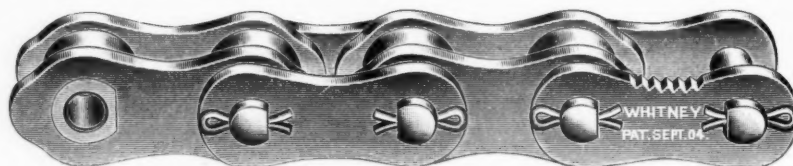
Watch the efficient Double Chain Drive on 1906 Model Cars equipped with "Whitney" Chains. No noise. No trouble.



New "Whitney" Chain Repair Outfit ready for operation



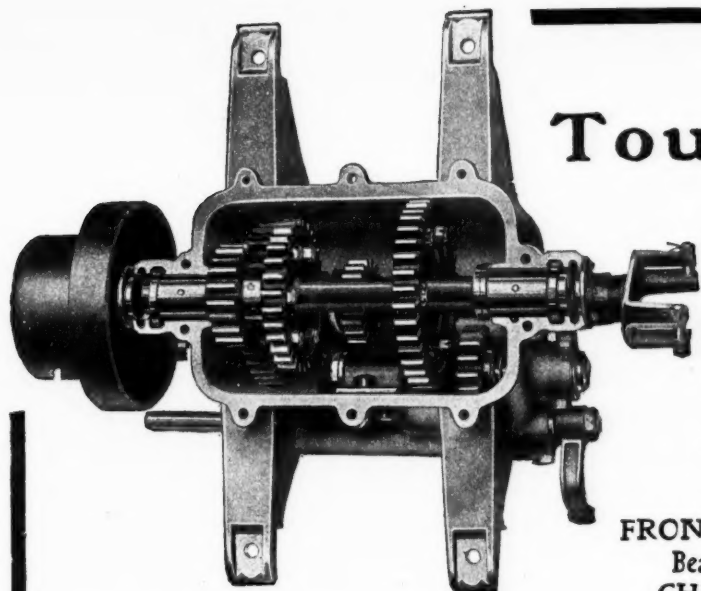
Repair Outfit with handle detached for tool box



A boy can repair 100 "Whitney" Detachable Chains in less time than it would take an expert, with the assistance of a complete machine shop, to repair one damaged direct gear drive.

The Whitney Mfg. Co.

HARTFORD, CONN.



Garford Touring Car Parts

The great problem of the hour for the automobile manufacturer is to develop the details of his engine. This study is so absorbing and important that the duty of producing axles and other parts has been left to other specialists.

Our specialty is the manufacture of parts for the very highest class of cars—parts that are as good as life insurance. We make:

REAR AXLE: Independent Shaft Drive, Ball or Plain Bearing, Weight Carried Entirely on Axle Tube

FRONT AXLE: I-Beam Section Nickel Steel Bed, Ball or Plain Bearing

CHANGE GEAR

STEERING GEAR

CLUTCH

DISTANCE ROD AND BRACKET

PROPELLER SHAFT

LEVERS FOR EMERGENCY-BRAKE AND CHANGE-GEAR

Parts of one size are suitable for cars weighing up to 2400 lbs. and of 30 h. p.

Parts of the other size are suitable for cars weighing up to 2800 lbs. and of 50 h. p.

Write for

Circular No. 12

THE GARFORD COMPANY, Elyria, Ohio

Sales Manager: HAYDEN EAMES, Cleveland, Ohio

PENNSYLVANIA CLINCHER

The value of a Tire is measured not by dollars, but by the Odometer.

The Tire which travels furthest without repairs is the most valuable to YOU.

The Tire which carries your Car softly over the road is the most valuable to your MOTOR.

PENNSYLVANIA RUBBER CO. JEANNETTE, PA.

MICHELIN

The success of Michelin Tires is in a large measure due to the MICHELIN VALUE, a cut of which is shown herewith.

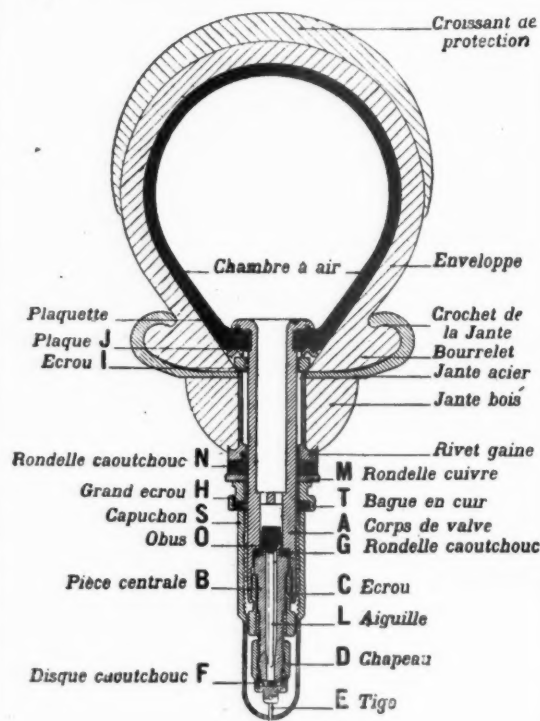
WRITE FOR PRICES.

MICHELIN TIRE AMERICAN AGENCY, Inc.

6 West 29th Street, New York

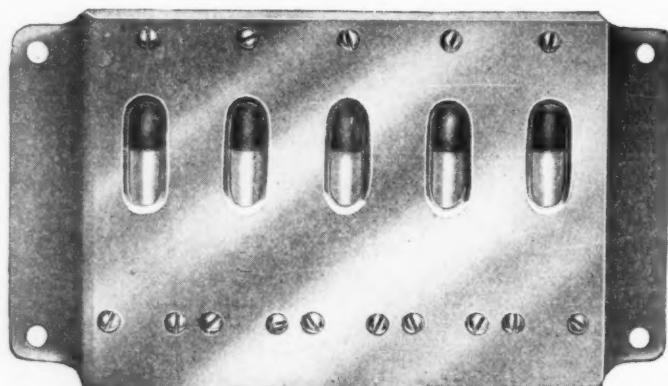
E. D. WINANS, General Manager
Telephones: 760-761 Madison Sq.

BRANCHES IN ALL LARGE CITIES IN THE UNITED STATES



VALVELESS WONDER

A pump without valves, stuffing boxes or springs. When we eliminate these unnecessary va ves, stuffing boxes and springs we eliminate all of your trouble. Our pumps are all tested before being shipped to 1400 lbs. pressure. Are manufactured in any number of feeds.



Patent Applied For

We herewith illustrate a sight feed for the dash, which will not cloud and which allows the full pressure of the pump to be exerted through it. With this type of sight feed it enables you to keep the dash on your auto clean. You can place the pump down under the body of your machine, piping to the sight feed and from sight feed to the engine or bearing you wish to oil. These are manufactured in any number, indicating the feed of the oil by the movement of the metal discs inside of the glass.

WRITE FOR CATALOGUE

MASON-KIPP MFG CO

MADISON WIS

Will you write us about the
1906 Agency for the Wayne?

The Wayne Agency for 1906 is a good thing. The Wayne Cars were extensively advertised last year in all the leading magazines and trade papers. For 1906 we have made arrangements for a campaign of cooperation with our local agents which will mean practical assistance in selling Wayne Cars. We realize that to get good agents it is necessary for the agent to have a proposition on which he can make money, and the Wayne agency proposition is one which it will pay you to investigate.

The Wayne line for 1906 is comprised of cars that have proved their ability to stand hard usage by three years' road service.

We have not changed the Wayne principle of construction because nobody has yet been able to show us anything better tho' our cars contain all new improvements and are strictly up-to-date (no old models built over).

WRITE US AND FIND OUT WHAT WE HAVE TO OFFER, BEFORE YOU FORGET

WAYNE AUTOMOBILE CO. - Detroit, Mich.

G&J TIRES

The Strongest Tires Made—because only the best of materials are used in their construction.

The Most Comfortable Tires—because most resilient.

The Most Economical Tires—because, being resilient, they increase the power of the engine, and reduce the consumption of fuel.

The Easiest Tires to Handle—because no tire clamps are used.

Write for Catalog and Tire Manual

G&J TIRE CO.

Indianapolis

Boston

Buffalo

Cleveland

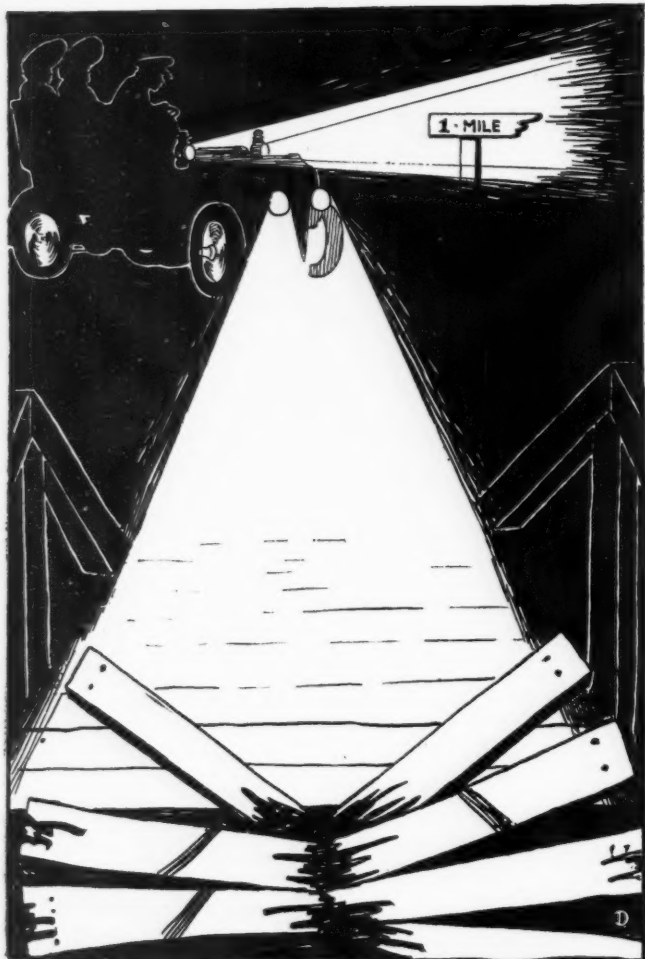
Detroit

Chicago

Denver

San Francisco

When Writing to Advertisers, Please Mention Motor Age.



THE IMPERIAL-LYON Automatic Lamp Adjuster

"Lights a Turn Before You Make It"

Makes the Lamp Move With the Wheels.

Operated by the steering knuckle rod to which it is connected. Can be adjusted to automatically turn as fast or faster than the wheels.

Shows What's Around a Bend.

Just the thing for night riding. Prevents accidents. If there's danger around a corner, you see it before the body of your car turns.

Works without friction. A handsome accessory. Made of solid brass.

If you ride by night, you need it.

Write for descriptive circular and price.

IMPERIAL BRASS MFG. CO.
249 S. Jefferson St. CHICAGO

BLANCHARD
FAMOUS
FRENCH HORN

—They Sound Like a Foghorn—
GET OUR PRICES



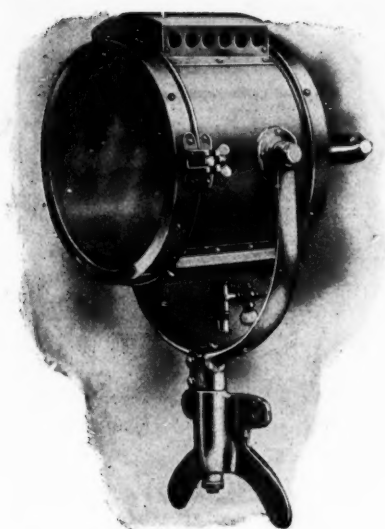
THE MOTOR CAR EQUIPMENT CO.
55 WARREN STREET
NEW YORK
SOLE U. S. AGENTS

**"SOMETHING TO
BLOW ABOUT,"**



Auto mobile Art Dep

SEARCHLIGHT SWINDLERS



The success of the Rushmore Lens Mirror Searchlight has been so complete that as a matter of course the lantern makers have been compelled to either try to imitate it or go out of business.

A number of them have conspired to keep us out of the automobile shows, have claimed that we do not make the celebrated Rushmore Lens Mirror and that they get their cheap flat lenses from the same place, and have resorted to every contemptible trick to deceive people into buying their trash.

Certain so-called jobbers have tried to push the sale of the imitation lights by issuing lists of what are insinuated to be our prices in comparison with their alleged cheap prices. The statement that we ask the prices quoted is a deliberate and malicious lie. The prices they offer are but

a few cents lower than ours, while the fake lights they offer are by comparison not worth their weight as junk.

Some of the fake jobbers refuse to furnish the Rushmore light when requested to do so on the plea that we cannot make delivery. That statement is likewise a deliberate lie. They offer to refund your money if not as represented, but you had better hold on to your cash.

We do not ask any money in advance, but will send the Searchlight on ten days' free trial to anyone worthy of credit. The fake jobber can make but 25 per cent to 30 per cent on the Rushmore, while he clears 100 per cent to 200 per cent on the fake lights which he obtains on consignment. Do you wonder that he is willing to cheat you?

Our prices are the lowest for the quality and we ship from stock.

RUSHMORE DYNAMO WORKS, = Plainfield, N. J.

"Firestone"

It Takes Knowledge

Born of experience to manufacture a tire that will continue to stand the strain of use on commercial vehicles.

In many instances trouble with tires has made a commercial vehicle unprofitable until FIRESTONE Side Wire TIRES were adopted.

We have in our offices EVIDENCE of what FIRESTONE Tires have done, after many others have been tried and found deficient.

"Then Why Not Firestone?"

Firestone Tire & Rubber Co.

AKRON, OHIO

New York

Chicago

Boston

Philadelphia

St. Louis

San Francisco

Los Angeles

Glad to Get Back To GOODRICH TIRES

Mr. H. C. Baxter of Walpole, N. H., in a letter of September 12, 1905, writes as follows:

"I am glad to get back to the use of your tires, after having satisfied my desire to test a foreign make, which I have found did not give me as good service on our country roads as yours, which I have used for years, have given me. I shall use your make in the future. At present I have a 24 h. p. Peerless, which I am using to make business trips between our canneries in New Hampshire and Vermont."

Yours truly,

H. C. BAXTER.

THE BAILEY "WON'T SLIP" TIRE.

Regular Goodrich construction, but provided with the Bailey "WON'T SLIP" Tread. Prevents slipping, slewing or skidding.



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

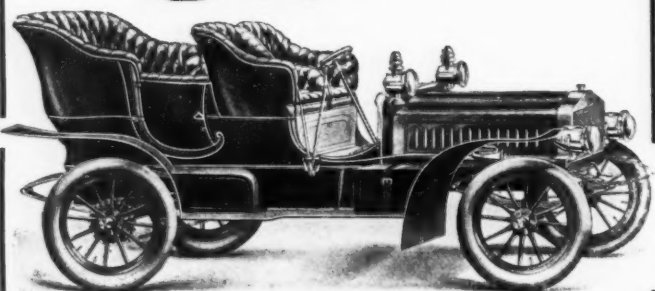
The B. F. Goodrich Company Akron, Ohio

NEW YORK, 66-68 Reade St., and 1625 Broadway
BUFFALO, 731 Main St.
SAN FRANCISCO, 392 Mission St.

CHICAGO, 141 Lake St.
BOSTON, 161 Columbus Ave.
DETROIT, 80 E. Congress St.
LONDON, E. C., 7 Snow Hill.

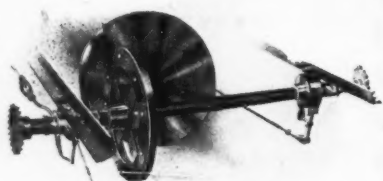
CLEVELAND, 420 Superior St.
PHILADELPHIA, 909 Arch St.
DENVER, 1444 Curtis St.

THE LAMBERT



Model 7. 28-52 h. p., \$2,000

A 16 h.p. Runabout



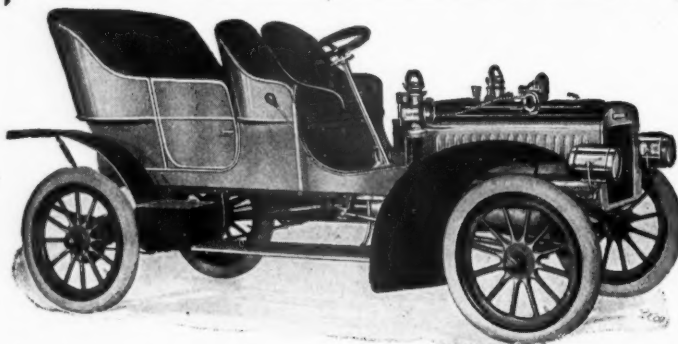
Our Noiseless Transmission

The most powerful machine on the market, a 1906 model. Write for specifications.

The Buckeye Mfg. Co. ANDERSON, IND.

MEMBERS AMERICAN MOTOR CAR MANUFACTURERS' ASSOCIATION, CHICAGO

MOLINE



18-20 HORSE POWER

Model "B"—\$1,600

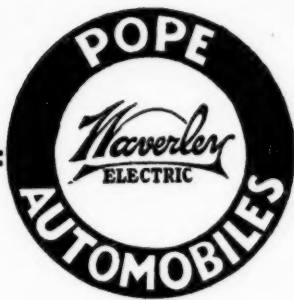
Four cylinder vertical motor that develops more than the rated H. P. Pulls through heavy roads and up hills in a way that surprises the owners of higher-priced cars. Has all the good features of most \$2,000 machines and costs \$1,600.

For the first time this season we can make immediate deliveries

We have only a few of them left and they will go quickly. Perhaps our proposition might interest you.

Model "D"—Our stock of these substantial 12 H. P. Touring Runabouts is decidedly limited. The price we are making is closing them out fast. If you want one, speak quick.

Moline Automobile Company EAST MOLINE, ILLINOIS



You See Them Everywhere

The cut below shows our Pope-Waverley, Model 30. It is by far the smartest station and general utility wagon yet produced. The front seat is finely upholstered; the interior of dark green broadcloth. Gearing noiseless, "herring-bone" type, running in oil, and protected in dust-proof cases. Motor equipment consists of two 3 h. p. motors of improved design, each capable of an overload of an additional 3 h. p.

We make also

Surreys, Chelseas, Runabouts, Delivery Wagons

and other models



Station Wagon, Model 30, \$2,250

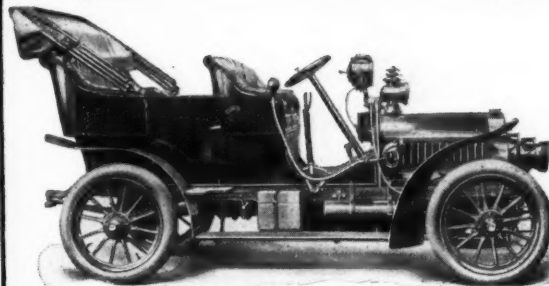
POPE MOTOR CAR CO.

INDIANAPOLIS, IND.

NEW YORK CITY	1733 Broadway
BOSTON, MASS.	223 Columbus Avenue
PROVIDENCE, R. I.	15 Snow Street
WASHINGTON, D. C.	819 14th Street
SAN FRANCISCO, CAL.	451 Mission Street

Cleveland

THE CAR OF SIMPLICITY



A Reliable Brake

is very important on an Automobile at all times; whether ascending or descending grades or running on the level.

¶ The Brakes on the CLEVELAND CAR—three—are positive in their action, and can be relied upon to perform their duty in any emergency. Any one of the three Brakes on the CLEVELAND when applied, disengages the clutch.

¶ The Emergency Brake is operated by a lever at the rights of the driver, and consists of one double-acting internal expanding bronze shoe, mounted in each of the rear hub drums.

¶ This Brake is so effective when applied, that it is possible to stop the car almost instantly.

¶ If you will send for our new Catalog, which contains full descriptive matter and illustrations, it will tell you more than the limits of an advertisement will permit.

IMMEDIATE DELIVERY 18 20 H. P. \$2,800

BRING AN EXPERT WITH YOU

CLEVELAND MOTOR CAR CO.

386 Erie Street : : : : Cleveland, Ohio

General Eastern Distributing Agent:

E. B. GALLAHER : 141 W. 55th Street, New York

Distributors:

BOSTON: Butler Motor Car Co., 998 Boylston St.

CHICAGO: The Bennett-Bird Co., 1404-1406 Michigan Ave.

MILWAUKEE: E. W. Arbogast Motor Co.

SOUTHERN CALIFORNIA: Worthington Garage, Los Angeles.

HILL PRECISION OILERS

THE WINTON MOTOR CARRIAGE CO.
MANUFACTURERS OF WINTON MOTOR CARS.
CLEVELAND, OHIO, U. S. A.

AGENTS: WINTON, FRANKFURT
TODAY: SHIMMER, THE FINE
GAS. E. BERRY, NEW AND TRUCK

CARL ANDERSON
"WINTON" CLEVELAND
WINTON MOTOR CARS

Sept. 14, 1905.

The Steel Ball Company,
840 Austin Avenue,
Chicago, Ill.

Gentlemen:

In reply to your favor of the 12th inst., would say that Mr. Alexander Winton has always recognized lubrication as one of the most important problems to be solved by automobile builders.

It is safe to assume that the Winton Motor Carriage Company has devoted more thought and experimenting to this feature than any other automobile manufacturing company in the country.

For more than a year the Hill Precision Oiler has been subjected by Mr. Winton to the most exhaustive test, both in our experimental department and also in exceedingly severe and prolonged road work. The most satisfactory results have been obtained, and as a result, believing it to be the most perfectly developed lubricating device yet produced, Winton cars will be equipped during the coming season with the Hill Precision Oiler.

Yours very truly,

THE WINTON MOTOR CARRIAGE CO.

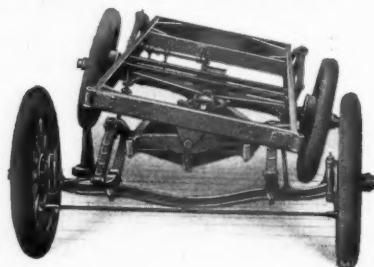
Charles Stewart
General Sales Manager.

THE STEEL BALL COMPANY

No. 837 Austin Avenue
CHICAGO, U. S. A.

THE MARMON

"A Mechanical Masterpiece"



Twisting an Automobile

Get the details of this front view firmly in mind. Note that raising a rear wheel over a foot tilts the body frame, but does not tilt the lower frame. (A front wheel raised reverses the condition.) Note that one wheel rests on the obstacle encountered but that the other wheels rest solidly on the ground doing their full duty, adjusting themselves naturally to any position the road may demand.

All country roads twist an automobile in this way—in small or large degree. The flexibility of the Marmon is such that it endures this constant process of twisting without straining any part.

But substitute any other car in this test, bearing in mind that other cars have but one frame, attached to the four springs. Suppose you fastened the same three wheels to the ground (they would have to be well fastened) and applied enough force to raise the other wheel a foot. You would get somewhat the same effect by securely nailing three legs of your chair to the floor and trying to lift the remaining leg. Not quite so bad as that because the car has springs, but springs do not remedy faulty principle, and strain through every part is the certain result.

Then multiply this strain by the effect of speed over rough roads that present constantly varying conditions for twisting the mechanism.

That done, you will be partially aware of the importance of an exclusive patented Marmon feature.

Double Three-Point Suspension

Solid cast aluminum body on one frame, power plant on another frame, each frame suspended on three pivotal points. No matter what wheels are raised, no matter which frame is tilted, the power plant and rear axle are maintained in perfect alignment. Permits the use of a rigid shaft drive (without universal joints) delivering a greater percentage of power to the wheels than is had in any other car.

This elasticity, by eliminating the binding and twisting strains inevitable in the rigid suspension of all other cars, means simpler parts, fewer parts and less wear on all parts, tires included.

It also gives the Marmon, over all roads, an easy gentle sway, a luxury of motion that is unknown and unknowable in any other car.

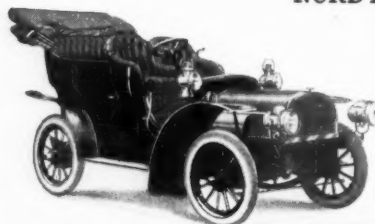
Stylish, strikingly handsome, and very quiet. Four cylinders; air-cooled. Has the only perfect force lubrication system, and is replete with features that appeal instantly and forcefully to all who seek a strictly high-grade car.

Write for Booklet No. 1 and become posted on the finest car of the times.

NORDYKE & MARMON CO.

(Established 1851)

Indianapolis, Ind.



Members American Motor
Car Manufacturers' Association,
Chicago.

ALL

Five of the
AMERICAN TEAM

in the
Vanderbilt Race

will use

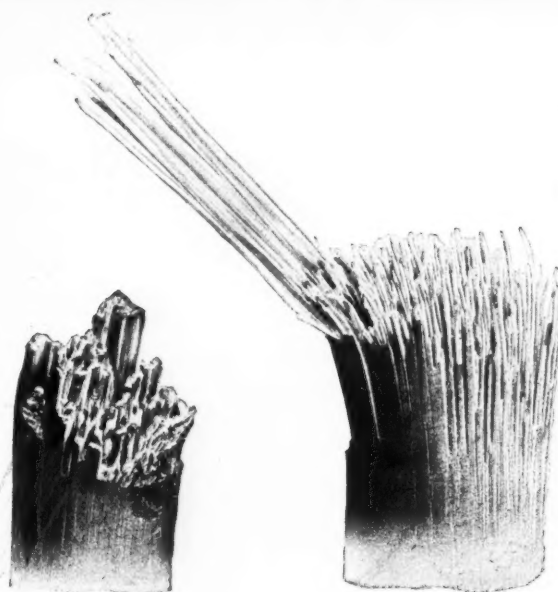
Diamond Wrapped Tread Tires

Loss of Time because of Tire Trouble counts as much in such a contest as Loss of Time because of Engine Trouble.

Manufacturers of cars do not select Tires on such occasions from sentimental motives.

They KNOW.

The Diamond Rubber Co.
Akron, Ohio



The "short" fracture shown above, while characteristic of poor oak, happens to show the fracture of poor hickory. The other fracture shows the quality of "Imperial" spokes.

Talks on Wheel Making No. 4

A bursted tire is robbed of its danger if the car is equipped with Imperial wheels.

There are two common methods of assembling wheels. One is to assemble the spokes in the two halves of the felloe, and then join the two halves. This method affords no guarantee of equilibrium of the central spoke arch, as only two of the spokes have a final radial pressure, while at least two have no radial pressure whatever. The other method is to press the spokes radially into the arch and assemble the felloe upon the spokes, afterward springing the spokes into the holes of the felloe. The shorter the spokes the greater the disturbance to the arch.

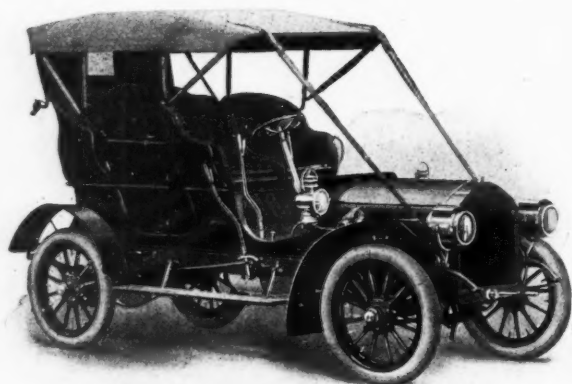
We employ neither method. In our factory spokes are assembled on the half rims without springing, but the final pressure on the spokes is radial in other directions, and the arch is undisturbed after assembly. We lubricate the arch that the spokes may "come home" evenly. The lubricant serves as a binder to protect the finished wheel and arch against those local strains which so often throw a wheel out of line.

The excellence of Imperial wheels is based upon the perfection and refinement of orthodox methods.

IMPERIAL WHEEL COMPANY
FLINT, MICH.

Selling Agent HAYDEN EAMES Cleveland, Ohio

The

HAYNES

Car that Won Honors

from America's best and most powerful special racing cars, in the VANDERBILT Trials, was simply a duplicate of our 1906 Touring Cars now going through the factory.

If THE HAYNES stock car defeats racers, what will it do to other stock cars?

We are booking orders and contracting agencies NOW for these cars.

Write us today.

The Haynes Automobile Co.

MEMBERS A. L. A. M.

New York

KOKOMO, INDIANA

Chicago

Third in Elimination Race September Twenty-third

If You Build A Racin' Car

to run 60, 70 or even 80 miles an hour, you won't need any extraordinary mechanical ability. You won't produce much that is of value if you succeed.

BUT

if you become the owner of a Royal Tourist, you have a car that can go fast enough to qualify in the Vanderbilt Cup Trials, and make the round of the course any number of times without the troubles the racing cars had, and one that will stay on the road, carry its passengers with comfort and safety, do its work quietly, and without strain on the motor or running gear.

REMEMBER

The Royal proved itself faster than the racers, and any owner will tell you about its reliability and comfort.

THE ROYAL MOTOR CAR CO. :: Cleveland, Ohio

ROYAL

AGENTS

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PORTABLE

AUTO HOUSES

MADE ENTIRELY OF STEEL

Protects your car and your property.

Affords a SAFE and HANDY place in which to keep your automobile, SUMMER and WINTER, when not in use.

DOES NOT CONFLICT WITH FIRE ORDINANCES.

DOES NOT BECOME A PART OF THE REAL ESTATE.

Easily erected by unskilled labor and can be moved as often as desired.

By keeping your car at home instead of at a garage (more or less distant from your residence), you are assured that no unauthorized person uses your car, unknown to you.

We make all styles and sizes. Send for catalogue of prices, illustrations and complete particulars. Address

The Lloyd Iron Roofing & Paint Co
107 West Monroe St. :: Chicago, Ill.

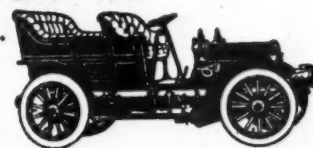
Locomobile

The Locomobile Company of America, Bridgeport, Conn.

Member Association Licensed Automobile Manufacturers.

NEW YORK, Broadway and 76th St.
PHILADELPHIA, 249 N. Broad St.

BOSTON, 15 Berkeley St.
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"THE SIMPLE CAR"



Elegant in Finish
Luxurious in Appointments

Built by Skilled Workmen from the best Materials Obtainable

The Simplest Gasolene Car in the World

—both as to construction and control, and the easiest to operate and maintain.

"Marks a New Era in Automobile Construction."

40-45 Horse Power, \$5,000

Corwin Manufacturing Company
Peabody, Mass., U. S. A.

National

Motor Cars

In two new models improved and better than ever will be ready very shortly.

We have a surprise to offer which will make EVERYBODY

"Watch for the Round Radiator"

National Motor Vehicle Co.

1006 East 22d Street
INDIANAPOLIS, IND.

Members American Motor Car Manufacturers' Association, Chicago.

TOPS

should be just as carefully designed and fitted as any other parts of the car. "ANY OLD TOP" won't do. Equip with the

LONDON TOP and secure the best that skilled top makers and the best of materials can produce.

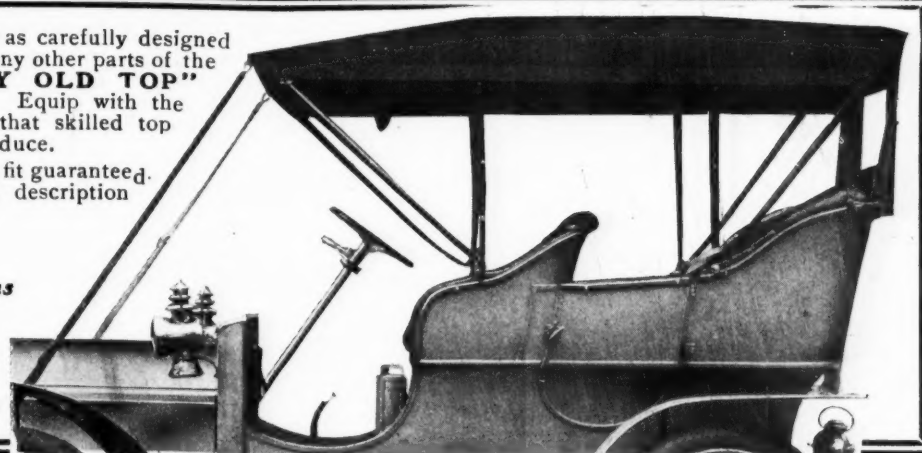
LONDON TOPS, made to fit any car, fit guaranteed. Prices, samples of materials and full description promptly mailed on request.

Lamp Covers Slip Covers
Tire Covers Engine Aprons

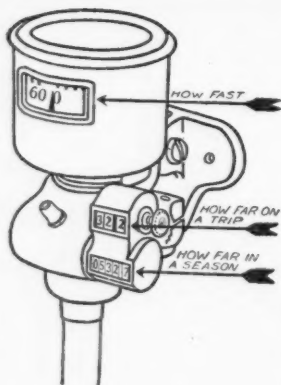
London Auto Supply Co.

1229 Michigan Ave.

Chicago



When Writing to Advertisers, Please Mention Motor Age.



THE AUTO-METER

on a car tells the speed of travel and the distance traveled. It is absolutely accurate.

"Built Like a Chronometer."

When you are whirling along, a glance at the Auto-Meter before you, tells you **exactly** how fast you are going if your pace be as slow as a fraction of a mile or as fast as 60 miles an hour. When a trip is finished, the Auto-Meter tells **exactly** how many miles you have gone on that trip. When the season is over the Auto-Meter tells **exactly** how many miles you have covered during the season. All this is worth while. Is it not? Get acquainted with the Auto-Meter. It will lead to lasting friendship. Write for catalogue and pamphlet, "Indisputable Evidence." The latter gives the interesting experiences of many prominent automobile owners.

WARNER INSTRUMENT CO., 55 Roosevelt Ave., Beloit, Wis.

Warner Instrument Co., 143 Federal St., Boston, Mass.

Warner Instrument Co., 804 Steinway Hall, Chicago, Ill.

Northern California, G. P. Moore & Co., San Francisco, Cal.

Warner Instrument Co., 1691 Broadway, New York City, N. Y.

Southern California, Heineman & Pearson, Los Angeles, Cal.

DANGER AHEAD!

Playing A Sure Thing

You always know that you have a sure, steady, full supply of cool, pure gas, instantly ready when you use the

Never freezes, never clogs. Never leaks and never wears out. No man ever returned to the uncertainties of the generator after using one.

Jan. 11, 1905.

Concentrated Acetylene Company,
Indianapolis, Ind.

Gentlemen:

The tank is a fine thing. For two months the "lighting up question" has been entirely forgotten, as I find that I always have light when needed. I have exhausted three tanks and exchanged them for refilled ones in a few minutes' time. I am running my car to-day when it is 4 below zero; last year my carbide generator would have frozen up; this year I am playing a sure thing and I can assure you that I appreciate the difference.

Yours very truly,

(Signed) WM. C. THORNE.

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To be had of all dealers. Empty tank exchanged for full one by any dealer.

PREST-O-LITE COMPANY
INDIANAPOLIS

AGENTS IN ALL CITIES

Price Complete
\$35

Exclusive Licensees
under patents of the
Commercial Acetylene Co.

TANK "RECHARGED"
AT SMALL EXPENSE
BY ANY DEALER



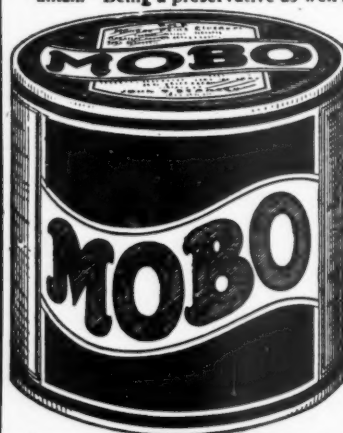
The Care of the Car

Washing the body of the machine, keeping the polished surface free from lubricator, road dust and gutter muck is just as essential to the life of an Automobile, as is the attention given the running gear.

Mobo, the new cleanser for Automobiles, will easily and quickly remove grease, dirt and grime and all traces of a hard run, without dulling or scratching the highly polished surface.

MOBO

is unlike common soap, as it positively contains no free alkali. Being a preservative as well as a cleanser, it prevents varnish or paint from peeling or cracking, and adds a fine gloss to the surface.



Mobo may be used with profit on leather goods, harness or woolen fabrics. Cannot harm the most sensitive skin, as it is a purely vegetable oil preparation and absolutely contains no free alkali. Put up in 2-lb. and 8-lb. cans; also in tubs, half barrels and barrels.

If your supply man does not keep **Mobo**, send us his name and address, and we will see your wants are supplied.

JOHN T. STANLEY
New York.

HAVE YOU SEEN THE NEW

KOKOMO AUTOMOBILE TIRE?

MECHANICALLY - ATTACHED

It is just what you have been looking for.

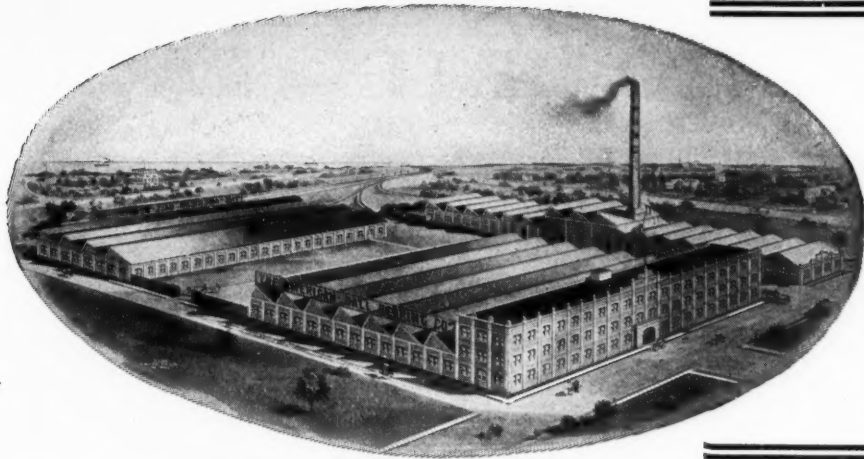
Quickly attached and detached.
Creeping and Rim Cutting entirely avoided.
Made of the very best material and workmanship throughout.

Write us for full particulars.

KOKOMO RUBBER CO.,
KOKOMO, IND.



When Writing to Advertisers, Please Mention Motor Age.



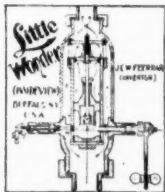
The output of COMPLETE FRONT and REAR AUTOMOBILE AXLES of this plant exceeds the capacity of all competition combined.

THE AMERICAN BALL BEARING CO.
L. S. & M. S. Railway and Edgewater Park
CLEVELAND, OHIO, U. S. A.

PATENTS PENDING IN ALL COUNTRIES

The Little Wonder Carburetor Manufacturing Company

347 Franklin Street
BUFFALO, N. Y.



This carburetor will fit all classes of motors, from one-horse power up, and is especially adapted to automobile and marine engines.

The "Little Wonder" Carburetor, used in connection with our Hot Air Generator on the exhaust pipe, is guaranteed to increase your horsepower from ten to twenty per cent, economizing in fuel consumption, giving a perfect mixture in quantity and quality at all engine

speeds; it is 100 per cent safer than the float-feed carburetor, and is positively guaranteed not to ignite or explode, and is absolutely impervious to flame or back-firing.

The "Little Wonder" Carburetor is hot-air jacketed, as enclosed cut shows, thereby increasing the vaporization of the gasoline, and giving a hot gas mixture under all atmospheric conditions. Our Carburetor will not leak, freeze, flood or cause any trouble, as is the case with other carburetors now on the market. Our object in placing this carburetor on the market has been to supply the increasing demand for an entirely automatic, simple, reliable and absolutely fireproof form of carbureting device. That we have succeeded in our efforts has been thoroughly proved by the appreciation of the many users and advocates of the pump-feed type of carburetor. In the "Little Wonder" Carburetor the air as well as the gasoline can be regulated at will by the operator. Our Carburetor is so simple that anyone of ordinary mechanical ability may perfectly adjust and apply same to motor.

Prices quoted upon application.

Generator, listed \$10.00

Carburetor, listed \$15.00

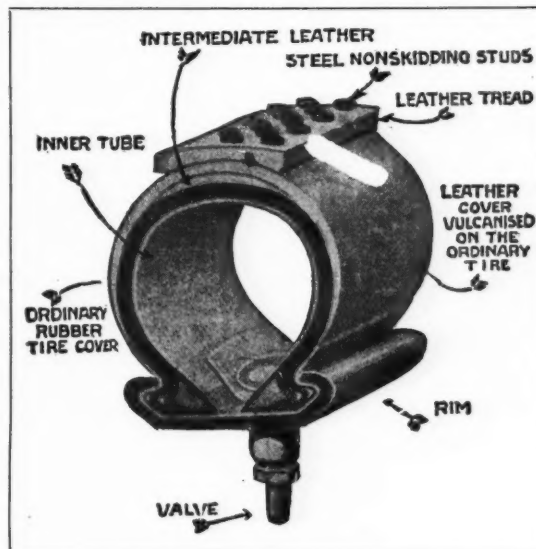
Ask for quotation and give diameter of exhaust pipe, 1 1/2" up. We build Gas Engines and Steam Engines; also Racing Machines for roadway and waterway, all combined in one. See cuts. Ask for prices on our Wheel Crank for pulling off and on wheels.

Respectfully yours,

J. C. W. FEERRAR, General Manager and Owner.

SAMSON LEATHER TIRE

NON-SKIDDING :: PUNCTURE PROOF



A. E. GALLIEN, Manager

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Tire Fastener for Heavy Work

Save Time, Money and Trouble
and GET MOST WORK out of

Motz Clincher Tires

Solid Rubber or Cushion Types
and made to fit any standard clincher
rim in which pneumatic tires are used

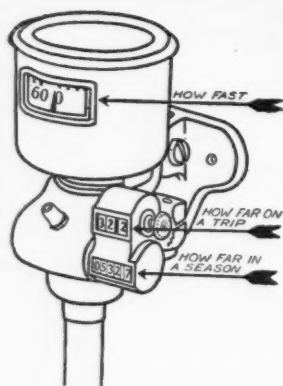
Resilient and "there with the wear"

The Motz Clincher Tire & Rubber Co., Akron, Ohio, U.S.A.

OBSERVE THE
FASTENING DEVICE



Tire Fastener for Ordinary Work



THE AUTO-METER "BUILT LIKE A CHRONOMETER"

TELLS THE SPEED OF TRAVEL TELLS THE DISTANCE TRAVELED

Tells both with absolute accuracy

The **Speed Dial**, six inches wide and easily read, records the speed of a car from a fraction of a mile to sixty miles an hour and does it unerringly.

The **Trip Dial** records the distance traveled on a trip or for a day.

The **Season Dial** records the total distance covered in a season.

There is satisfaction in knowing how fast your car is traveling, satisfaction in knowing how far it has traveled. You enjoy this double satisfaction with an Auto-Meter on your car. Some one of your friends surely has one. Ask him about it.

In the meanwhile let us send you a catalogue and interesting pamphlet, "Indisputable Evidence."

WARNER INSTRUMENT CO.

55 Roosevelt Ave., Beloit, Wis.

Warner Instrument Co., 143 Federal St., Boston, Mass.

Warner Instrument Co., 1631 Broadway, New York City, N. Y.

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Northern California, G. P. Moore & Co., San Francisco, Cal.

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Compound MOTOR CARS



Model Four, \$1,400

HALL BROTHERS

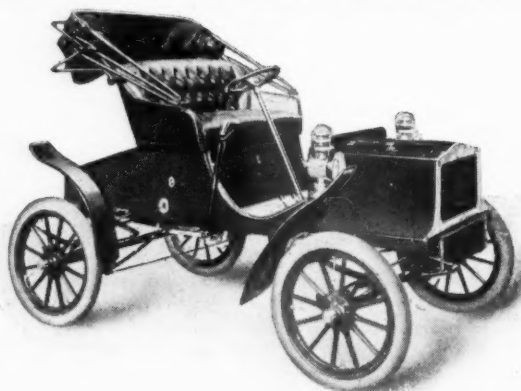
The E. H. V. Co., Middletown, Conn. NORWICH, CONN., Sept. 5, 1905.

Gentlemen:—The Compound that I purchased of you last Spring is giving excellent satisfaction. I have used it considerably cross country touring and find it both reliable and economical. I can cheerfully recommend the Compound to any one desiring a quiet, smooth running car.

Yours respectfully, F. B. HALL.

THE E. H. V. CO., MIDDLETOWN, CONNECTICUT

A TIMELY WORD TO DEALERS



THE GALE \$500

Model A

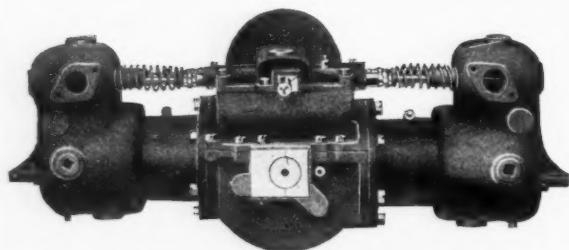
Will be a genuine sensation in 1906

Every Up-and-Doing Dealer knows the value of handling *A GOOD CAR* at a low price. *THE GALE* stands alone in its class.

By all means get our proposition to dealers for 1906 ... It will interest you *SURE*. Address

WESTERN TOOL WORKS

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"BEAVER MOTORS"

Maximum Power—Minimum Weight

All bearings and parts subject to strain of ample dimensions. Get particulars and prices for your 1906 cars

12-14 H. P. OPPOSED

16-18 " "

22-24 " VERTICAL

BEAVER MFG. CO., MILWAUKEE WISCONSIN

Columbia

Electric Town Carriages NEW MODELS NOW READY

The cut shows the new Columbia Electric Brougham, Mark LXVIII, with Lightened Construction, Pneumatic Tires, 5-Speed Control, Special Exide Battery and other improvements.

With same Chassis we supply Landaulet, Hansom and Victoria Bodies.

Send for Bulletin No. 75

ELECTRIC VEHICLE COMPANY

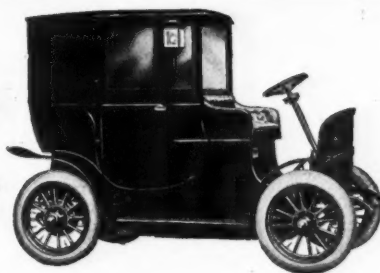
Members Association
Licensed Automobile
Manufacturers

Hartford, Conn.

New York Branch: 134, 136, 138 West 39th St.
Chicago Branch: 1413 Michigan Ave.

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Manufacturing concern having recently purchased large commercial motor vehicle works, is preparing to extend operations on a greatly enlarged scale for 1906, and wants

CAPABLE REPRESENTATIVES FOR EASTERN TERRITORY

OFFICE MANAGER

(Must be proficient in double entry book-keeping)

EXPERIENCED CORRESPONDENCE MAN

SUITABLE REPRESENTATIVE FOR FOREIGN TRIP

All departmental heads and prominent attaches must become financially identified with the business.

Address

"COMMERCIAL"

CARE OF MOTOR AGE, CHICAGO

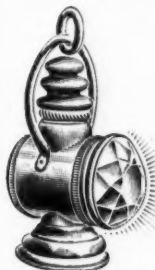
Latest European Novelties

RACING CAR
No. 13878

We are now importing a complete line of Mechanical Automobiles, including side entrance and rear entrance Touring Cars, Runabouts, Racing Cars, etc., which are mechanically operated with clock work and spring. Catalogue mailed on request.



AUTOMOBILE JEWELRY



No. 5361. Full Size.

We are now handling a line of Automobile Jewelry, consisting of watch charms, watch fobs, ladies' hat pins; in sterling silver and rolled gold plate, designed and copied from automobiles and automobile parts, such as lamps, horns, wheels, etc.

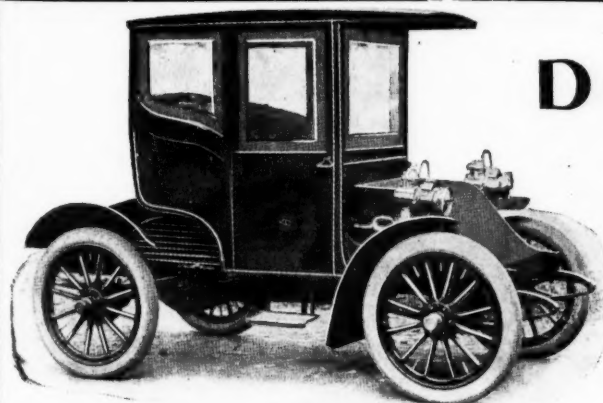
Catalog mailed on request.

CHARLES E. MILLER

Manufacturer, Jobber,
Exporter and Importer

Home Office, 97-99-101 Reade St., New York City

BRANCHES
Broadway and 36th St., New York 318-320 N. Broad St., Philadelphia
202-204 Columbus Av., Boston, Mass. 406 Erie St., Cleveland, Ohio



A SPLENDID DOCTOR'S CAR

THE ADAMS-FARWELL MOTOR CAR

Three Cylinder Gasoline Motor :: Revolving :: Air-Cooled

Operated from rear seat or from folding front seat.
All windows may be lowered, making an open car.

NO WATER. NO RADIATOR. NO FLYWHEEL. NO MUFFLER.
AUTOMATICALLY GOVERNED. NO FAN.

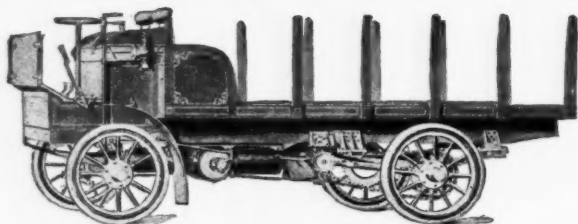
Cylinders 5 in. Bore. Displacement 265 cu. in. 20.25 Horse Power.

\$2,500

Chicago Salesroom: 1536 Michigan Ave.

THE ADAMS COMPANY DUBUQUE, IOWA, U. S. A.

KNOX



NEW MODEL STAKE TRUCK

Developed along the sound lines of construction that have built up for us the largest Gasoline Commercial Car Business in the country.

POWERFUL RELIABLE ECONOMICAL

CARRYING CAPACITY, 6,000 LBS.

Cylinders Air Cooled Speed 12 Per Hour
Chassis is adapted to bodies of various styles

Every firm using trucks of large capacity should investigate this new model. It is one of the finest products of our many years' experience in building cars for "All the Year Round" service. Write for particulars as to Waterless Knox D-4 Stake Truck.

Agents in All Principal Cities

KNOX AUTOMOBILE CO., Springfield, Mass.

Largest and Oldest Manufacturers of Gasoline Commercial Cars.

MEMBERS A. L. A. M.

The Expected Revolution Has Come

If you can think of a good reason for buying twice the machinery you need in a touring car and paying twice the expense for its upkeep, then you have found the only good reason why you should not buy an

Elmore

You certainly do not want four cylinders if two cylinders will do the same work and produce the same power—and that is precisely the extraordinary efficiency furnished by the two cycle two cylinder Elmore engine. Understand—the two cycle two cylinder Elmore engine produces two impulses every time the flywheel turns. As you know, the two cylinder four cycle furnishes only one impulse every fourth time the flywheel turns. In other words, the revolution which you have been expecting in automobile construction has come—and the perfect engine is here.

You'll realize quick as a flash when you look into the matter that the two cycle engine is a giant stride in advance—and that to cling to the four cycle in the face of the two cycle triumph is to take a step backward. Lose no time in finding out all about this remarkable mechanical achievement. Send for the technical description, stories of the conclusive tests, opinions of agents and users—the history of a tremendous success which has reached its climax this season after five years of steady improvement.

THE ELMORE MFG. CO.,

804 Amanda Street
CLYDE, OHIO

"20TH CENTURY SOAP"

One
Pound
Can
10c

Invaluable for ALL
Cleaning Purposes
About a Garage

25
Pound
Pail
\$1.15

3½
Pound
Pail
25c

Nothing can compare with it for
cleaning and polishing the highly
finished surfaces of an automobile

60
Pound
Tub
\$2.50

CONTAINS NO LYE. Made of Strictly
Pure Vegetable Oils.

ABSOLUTELY A PURE SOAP

The Pure Oils of which it is made
are beneficial to the skin, and keep
the hands in good condition.

Or
in
Barrels

TRY IT TO-DAY

HOFFHEIMER SOAP CO.
CHICAGO

Automobile Lamp Manufacturers

WHO USE

Licensed Burners Only

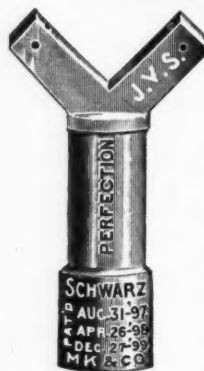
Atwood Manufacturing Co., Amesbury, Mass.
Badger Brass Mfg. Co. (Solar), Kenosha, Wis.
Commercial Acetylene Co., New York City, N. Y.
R. E. Dietz Co., New York City, N. Y.
A. H. Funke, New York City, N. Y.
Gray & Davis, Amesbury, Mass.
Manhattan Lamp Works, New York City, N. Y.
Motor Car Equipment Co., New York City, N. Y.
New York Coach & Auto Lamp Co., New York City, N. Y.
Rose Mfg. Co., Philadelphia, Pa.
Scoville & Peck Co., New Haven, Conn.
Also all Auto Supply Houses.

The Von Schwarz Burners are, with the exception of the Crescents, the only licensed burners.

Von Schwarz Burners

On Label: Von Schwarz and patent number,
On Statute: J. v. S.
On Wall: J. v. S.

M. K. & Co.
Pat. Aug. 31, '97.



This little Acetylene Lamp Burner has been the source of a great deal of annoyance. This list is published for the benefit of those who desire to avoid it.



RILEY *"Auto"* ROBES

THE ONLY ROBES
that harmonize with the Automobile
and the only ones in keeping with "Smart" Outfits

WIND-PROOF
DUST-PROOF
WATER-PROOF
OIL-PROOF
ACCORDING
TO SEASON



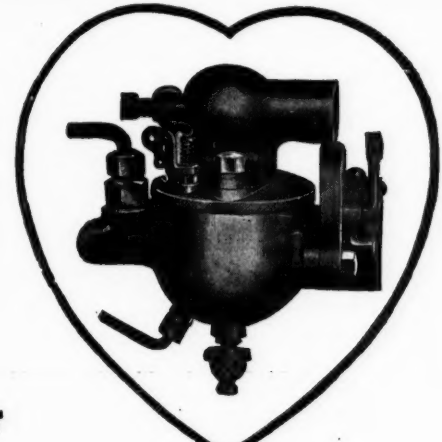
FOR
SPRING
SUMMER
AUTUMN
OR
WINTER

Forty Styles and Prices Illustrated Catalog on request

WM. B. RILEY & CO., Makers, PHILADELPHIA

"Riley Robes are Right"

THE
HEART



OF THE
AUTOMOBILE

The Schebler Carbureter

SIXTY-FIVE automobile and marine engine builders in the United States and Canada have adopted the Schebler. No other carburetor made in the world can show this record.

SCHLEBLER SPECIAL for Cadillacs, -	pr. ce, \$ 0.00
OLD-MOBILE CARBURETER -	" 18 00
FORD, Two-cylinder -	" 18 00

Standard sizes will fit all other automobiles. Agencies in all the principal cities of the world.

F. H. WHEELER
Manufacturer and Sales Agent
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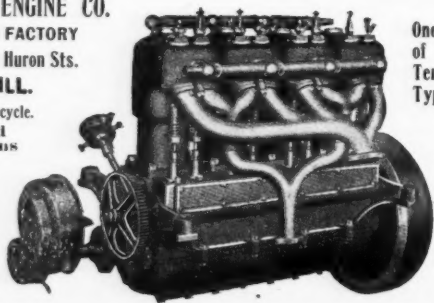
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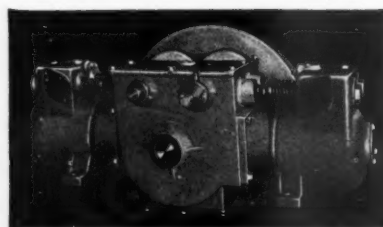
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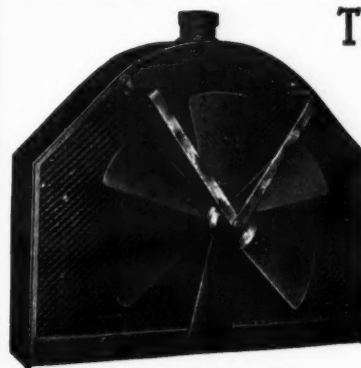
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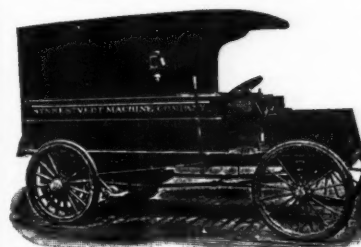
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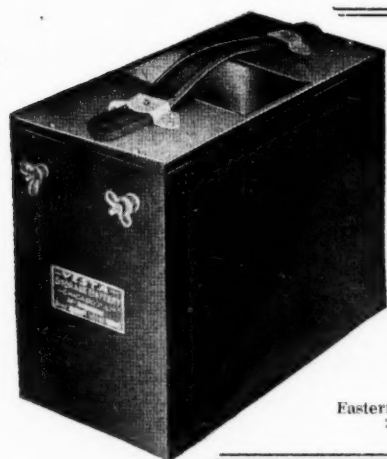
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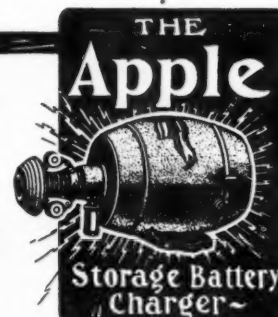
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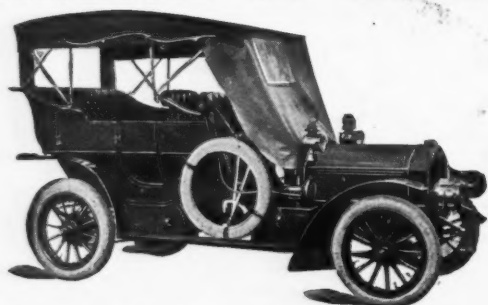
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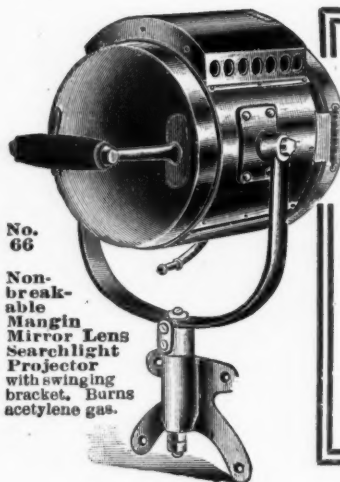
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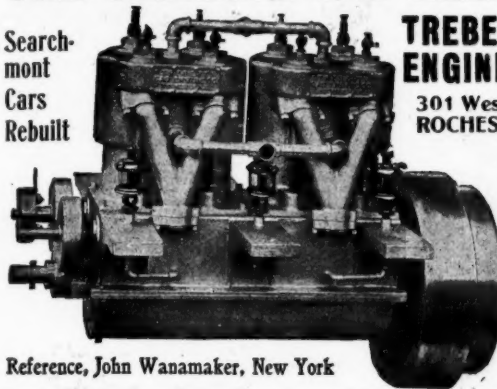
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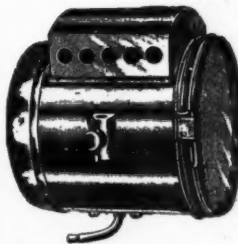
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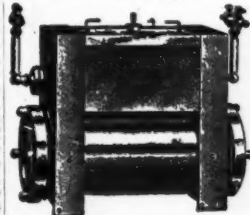
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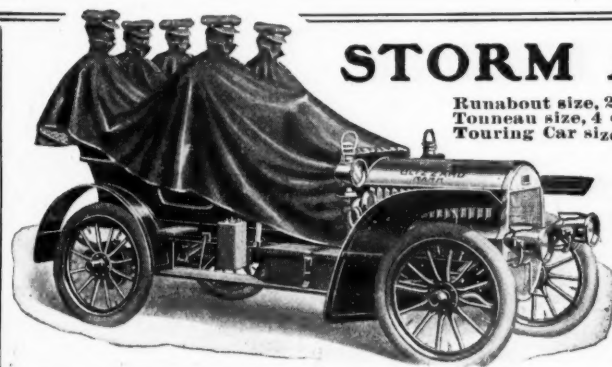
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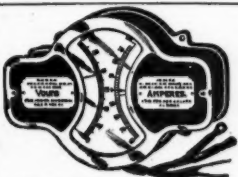
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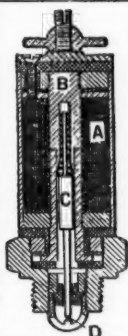
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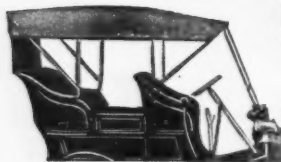
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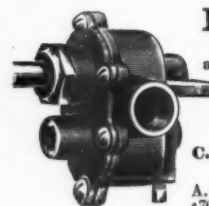
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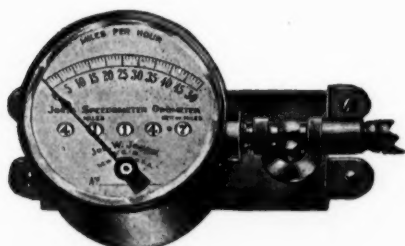
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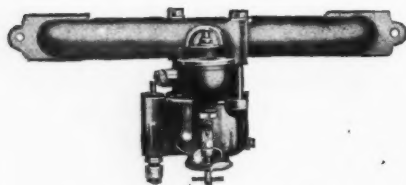
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Very low rates via the Rock Island—Standard and Tourist sleepers and electric-lighted chair cars.

Go via Chicago, return via St. Louis if you like.

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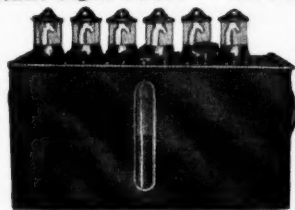
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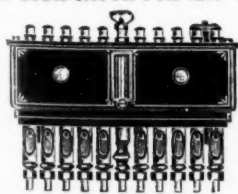
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You turn the cranks and the four wheels will raise 7 inches off the floor. Write for description and price.

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A line of switches of original design; contacts dust-proof covered.
Detachable terminals.
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FOR SALE—1904 model Rambler automobile; 16 horsepower, with detachable tonneau. Apply at 381 Jackson St., St. Paul, Minn.

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1903 OLDS in fine shape; price \$300. Low price on 2-cylinder 4x5 auto or marine engine. Fred P. Neumeister, Rockford, Ill.

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FOR SALE—Model B Cadillac detachable tonneau and deck, new Swinehart tires rear, G & J forward; perfect condition every way; \$50 extras; \$600. Iowa, Motor Age, Chicago.

FOR SALE—One Ford Model C, side entrance tonneau, painted Ford green; trimmed in black leather.

Two Ford and two Cadillac detachable delivery bodies.

Two side entrance Ford and two Olds tonneaus, not painted or trimmed.

Make offer on lot or on one of them separately. M. Crumrine, Greenville, Ohio.

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FOR SALE—Winton, 1903, with top, acetylene lights, new rear tires; car thoroughly overhauled and in fine condition. Price \$750. Address M. F., care Motor Age.

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DEMONSTRATING cars at low prices. '05 Model F Knox touring car, glass front, top, etc., run less than 1,200 miles, \$1,500. '05 Elmore touring car, top, etc., run only 500 miles, \$1,000. '05 Stanley surrey, fine condition, \$750. '05 3-cylinder Cameron runabout, good as new, \$500. '04 Stevens-Duryea, \$700. Lowell Auto. Corp., Appleton St., Lowell, Mass.

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FOR SALE—Locomobile steamer, perfect condition, \$175; 2 Model "E" Ramblers, good condition, \$225-\$300; 2 12 h. p. double cylinder Elmore, detachable tonneau seats, \$250-\$450; 1 machine with 7 h. p. Oldsmobile engine, great bargain, \$125; 20 h. p. Phelps, 3 cylinders, \$500; Model "E" Rambler with wheel steering, run less than 150 miles, \$425; 1903 Winton, 20 h. p., with tonneau, \$900; 10 h. p. Ford runabout, \$375. E. S. Youse, Reading, Pa.

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FOR SALE—2 cy. 20 H. P. Winton, with extension cape top and glass front; an exceptional bargain. H. G. M., care MOTOR AGE.

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FOR SALE—8-10 passenger wagonette; sample car 1905-6 Model; steam; price and description on application. Thompson Auto Co., Olneyville Sq., Providence, R. I.

FOR SALE—1905 "Franklin" runabout in absolutely first class condition, used for demonstration only, and has had the best of care and is in every respect as good as new. R. D. Ramien, 230 Grand Ave., Milwaukee, Wis.

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FOR SALE—One Apperson Bros. 1903, 40 H. P.; fully equipped for touring; \$1,200; best of condition. A. P. Robertson, Noblesville, Ind.

FOR SALE—A good established automobile business located in the northern part of Illinois in city of 40,000. Only automobile business in city, with over one hundred cars in use. Party owning business engaged in other lines and cannot give sufficient time to the automobile work. Address J. G., MOTOR AGE.

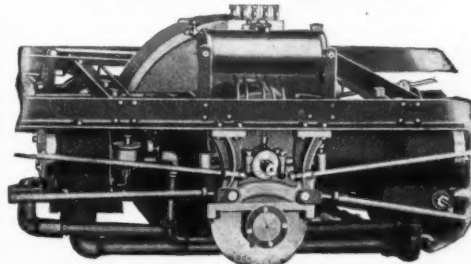
WANTED—Second-hand single cylinder automobile engine complete; describe fully. E. R. Duck, Monroe, Neb.

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1906 Logan

That Car of Quality

One of
Many
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ALL KINDS RUBBERINE FILLED are puncture proof; give twice the service, saving delays; resiliency retained; get sample and prices. Also new and second-hand tires. Automobile Palace, 152 W. Jackson Blvd., Chicago.

AUTOCAR, type 8, with four cylinder 3 $\frac{1}{2}$ x 4 Rutenber engine, magneto and battery ignition, McCord force feed oiler, cape top, Rushmore lamps, extra tubes, tools, etc.; good condition. Also Remy four-cylinder magneto and coil (new). Thomas H. Halton, Allegheny Ave. and C St., Philadelphia, Pa.

FOR SALE—Rambler runabout, in first class condition, \$250; must sell. Chas. Newcomb, Huntington, Ind.

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FOR SALE—Haynes-Apperson, 16 h. p. touring car; used very little; in perfect condition; a snap for the early buyers. Burney Bird Auto Co., 319 Wabasha St., St. Paul, Minn.

FOR SALE—1905 Marion air-cooled car, or will exchange for a 1905 White. Dr. A. B. Poore, Cedar Rapids, Ia.

FOR SALE—1904 Northern touring car, with new 1905 motor, extra tires, large headlight. A bargain. Address C. E. Haynes, Cadillac, Mich.

WANTED—Growing concern wants assembling department foreman. Good chance for experienced man to better himself. M. E. M., care MOTOR AGE.

FOR SALE—Model L Rambler; has double opposed motors, 16 h. p.; looks well and is in good condition; tires almost new; sell cheap. One 1905 Model F four-cylinder, air-cooled Premier; new; never run; sell at a bargain. W. E. Rudy, Lima, Ohio.

FOR SALE—New Brass Trimmed, Plate Glass Front, Canopy Top, cost \$125.00; our price, \$65.00. George Auto Co., George, Ia.

Wanted Names of Automobile Owners that they would rather see their tires being pumped up than do the pumping. Our **Tom Tire Pump** fits on any Standard Machine and is worked by the motor, easily attached, well tested out, all enclosed and very satisfactory. Get acquainted with it. It is something that you will like. Agents wanted.

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Fully described in Horseless Age, Feb. 1; Automobile Review, Feb. 4.

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1905 model, 1 inch inlet, absolutely new; \$4.75 each. Cash with order.

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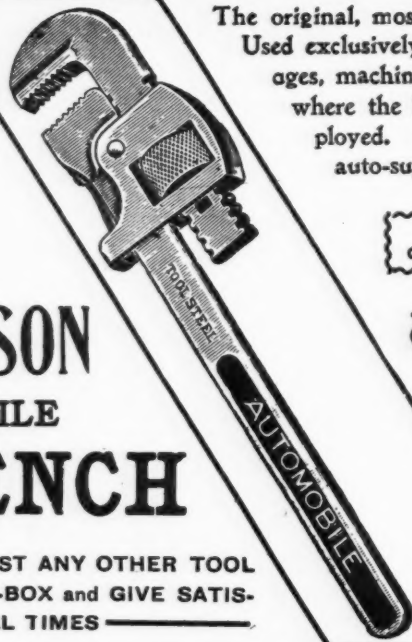
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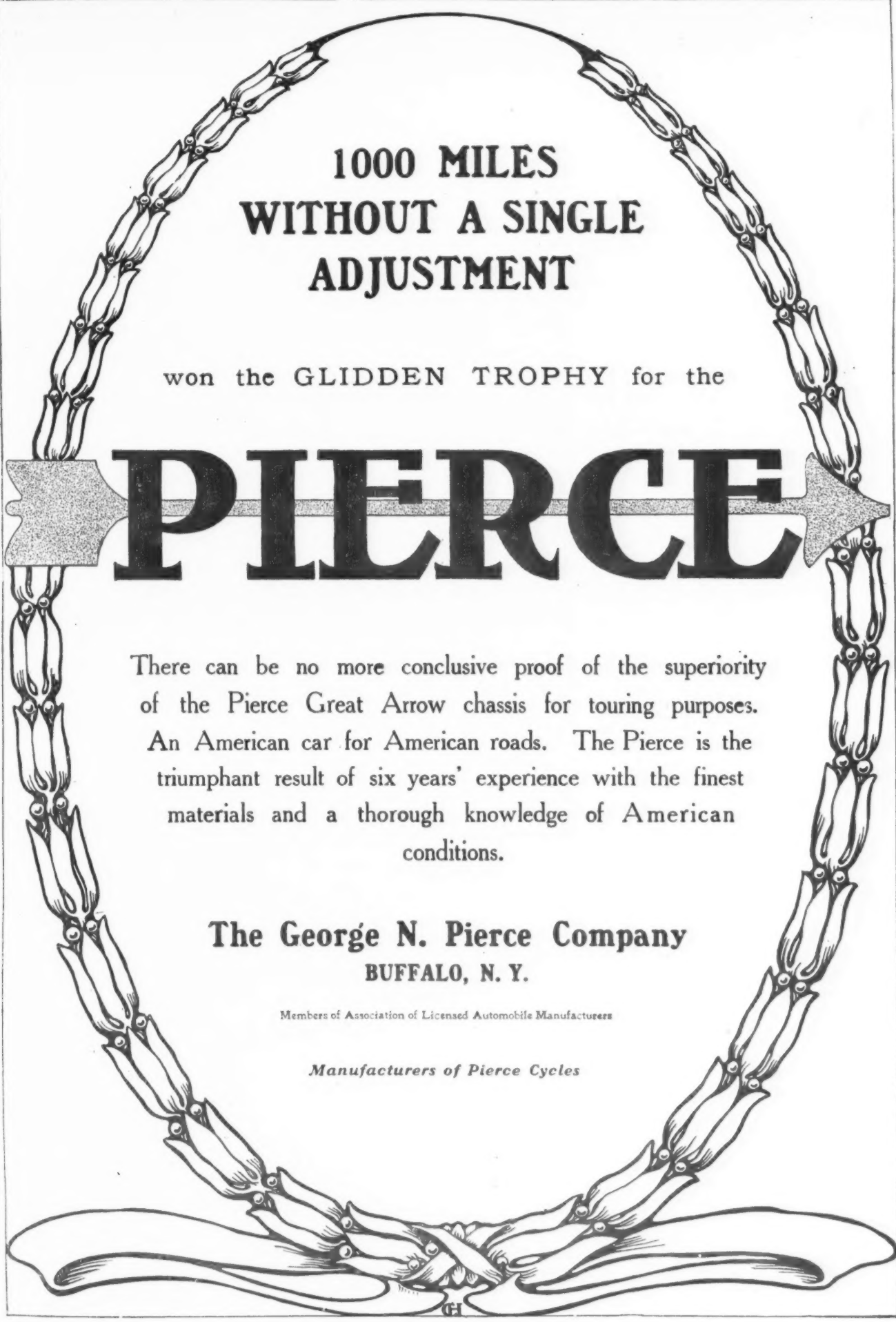
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